

2018 Ecological Study of Visitor Movement Areas

ENVIRONMENTAL SURVEYING AND MONITORING OF THE WILD ATLANTIC WAY OPERATIONAL PROGRAMME

for:

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Section 1 Introduction and Background

1.1 Background

This report is one of a suite of reports which comprise the 2018 Wild Atlantic Way (WAW) environmental surveying and monitoring program. This suite of reports includes the following:

- The macro monitoring results;
- The visitor observation study results;
- The ecological study of visitor movement areas; and
- The further monitoring report.

These assessments are being undertaken as part of the obligations set out in the SEA and AA reports of the WAW operational program. The data collected aims to characterise the interactions between tourism and key environmental metrics along the WAW. This includes characterisation of typical activities and effects from individual tourists to broad scale effects such as waste water management.

These assessments are undertaken annually and the scope of works being undertaken is reviewed by the environmental working group which meets twice a year to discuss the monitoring program. The working group consists of stakeholders such as local authority representatives as well as representatives from agencies such as the EPA and NPWS.

The monitoring is intended to be a high level snap shot of the existing condition of sites along the WAW to inform the strategic planning of the WAW.

1.2 Introduction

CAAS were commissioned by Fáilte Ireland to undertake detailed ecological baseline surveys at Fourteen¹ Discovery Points on the WAW (see Figure 1.1 & Table 1.1).

The aim of the ecological study was to collect baseline ecological information on sites in order to inform an assessment of visitor impacts² 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 observation survey examined the types, spatial patterns, and intensity of existing visitor activities at and adjacent to each of the Discovery Points³. This visitor observation 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.

The focus of this ecological assessment is on flora composition, habitat condition and the use of birds and any other fauna observed on site as indicator species (where relevant).

All suggested remedial actions and recommendations made as a result of the Visitor Monitoring data and subsequent ecological assessments are to be considered with respect to all of the Policies and Objectives of the Wild Atlantic Way Operational Programme. Most notably Appendix V: Site Maintenance Guidelines. These guidelines provide robust measures to ensure any works that take place on site are designed and undertaken in an environmentally sensitive manner to ensure the protection of the ecological integrity of the site. Similarly, all remedial action must be undertaken in compliance with the

¹ Note that a site referred to as Derrigimlagh Bog Signature Discovery Point was monitored in 2015 and this same site was monitored again in 2018. However, on review it has been discovered that this site is not in fact Derrigimlagh Bog Signature Discovery Point but a site further west at the Alcock and Browne memorial. As a result, 14 signature discovery points are presented in this report. Derrigimlagh Signature Discovery Point will be monitored in 2019.

² This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects detailed in Appendix III of the Visitor Monitoring report.

³ CAAS (2018) Visitor Observation Study Results: Environmental Surveying and Monitoring of the Wild Atlantic Way Operational Programme: Fáilte Ireland

EU Habitats Directive (Council Directive 92/43/EEC) and all associated national regulations and relevant planning and consent processes as required.

1.3 Study Aims

The main aims of the ecological study include the following:

- Describe the existing ecological characteristics of areas at and in proximity to Discovery Points;
- Assess the potential for key bird species by focusing on ecological resource availability;
- 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 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 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 designated nature conservation sites (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.

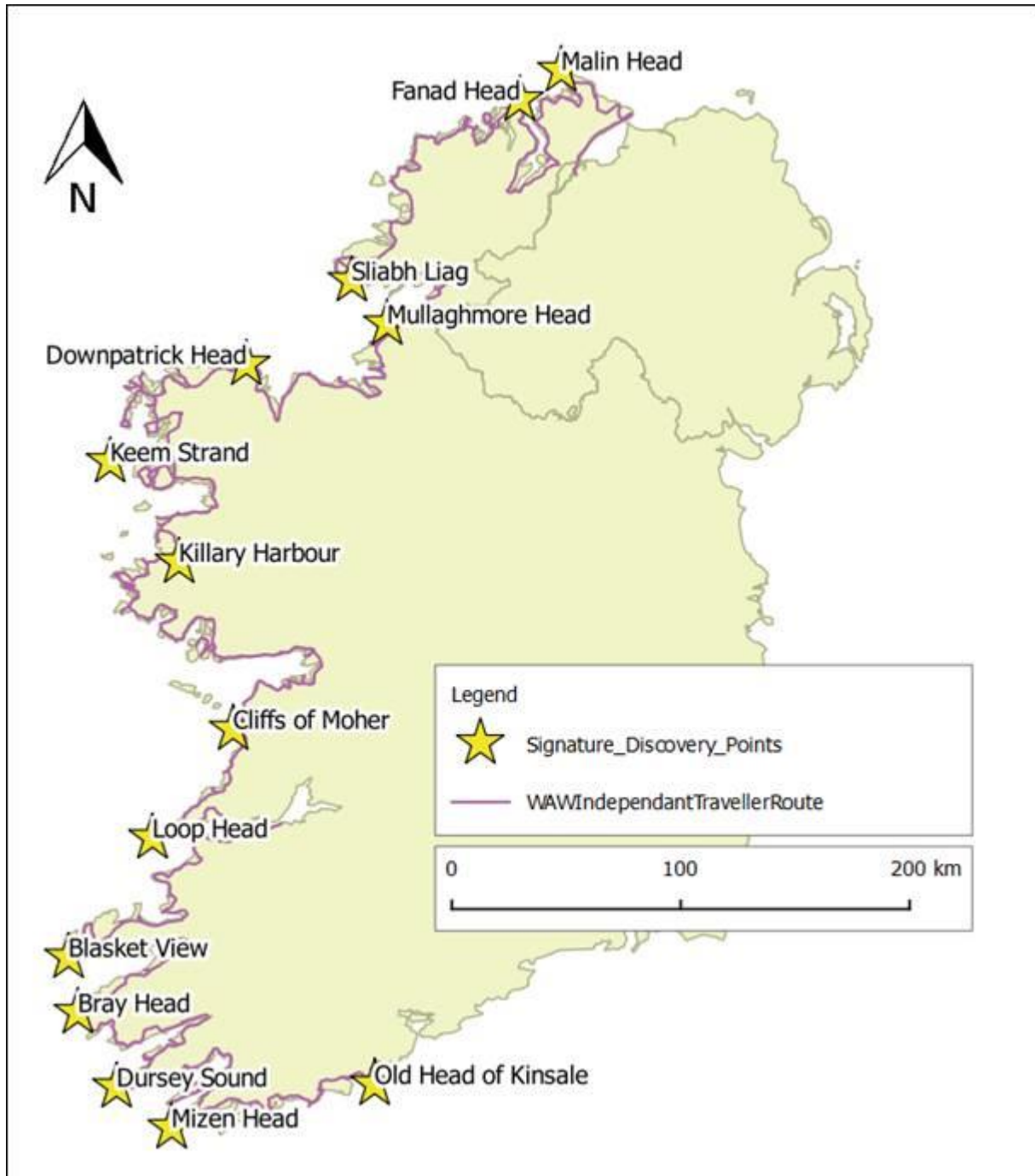


Figure 1.1 Discovery Points along the Wild Atlantic Way surveyed during 2018

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

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

Section 2 Methodology

2.1.1 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).

2.2 Flora Assessments

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, 116 quadrats were recorded during the survey. The various parameters recorded at each quadrat location are described in Section 3 below. In 2015 each of the 15 Signature Discovery Points¹ were surveyed, and these sites were revisited during the 2018 surveys. Due to the misidentification of the Derrigimlagh Bog Signature Discovery Point in 2015, the Alcock and Brown Monument was surveyed in both 2015 and in 2018 for consistency. As this site is not a feature of the WAW the results are not included in this report. A comparison of the outcome of these surveys is presented in this report. Dursey Sound is the control site and was revisited in 2018 after a similar visitor impact surveys were undertaken in 2015, 2016 and 2017. In 2015 and 2016 Dursey Sound was referred to as Garnish Point.

2.2.1 Quadrat Selection

A visitor behaviour survey undertaken during June and July 2018 examined the types, spatial patterns and intensity of existing visitor activities at and adjacent to each Discovery Point³. 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 (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.

2.2.1.1 Quadrat Recording

Quadrats of the different vegetation types on the site were recorded in a specially designed digital database (Survey 123 and ESRI Collector for ArcGIS) 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 measurable 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; and
- 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, cover and height values for different plant groups etc.).

Photographic records of each habitat type were taken, which 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.

General survey target notes were recorded on a GPS enabled field computer running GIS software application (ESRI Collector for ArcGIS). 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)⁴ 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).

2.2.1.2 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

2.2.1.3 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 Flora Protection Order (2015), and Annex II of the E.U. Habitats Directive.

Plant species nomenclature in this report follows Rose (2004) 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.

2.2.1.4 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 in July and August which is the optimum period however, some early flowering plants may not have been recorded. The GPS enabled field computer is accurate to within 5m.

⁴ All habitats identified within the quadrats were based on community composition, topography and physical features such as soil stability etc. The supporting data can be found in Appendix I. All data was cross referenced with available maps from the NPWS protected sites database to facilitate consistency of reporting

Section 3 Results

This section of the report presents the outcome of the survey on a site by site basis. The results 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, 116 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 116 quadrats is presented in Appendix I.

3.1 Old Head of Kinsale, County Cork

3.1.1 Site Description

Old Head of Kinsale is a headland situated south of the town of Kinsale in Co. Cork. It is located adjacent to the Old Head of Kinsale SPA Special Protection Area (SPA). The site is designated as an SPA for the protection of species of birds listed in the European Union Directive on the Conservation of Wild Birds.



Old Head of Kinsale is privately owned with an onsite golf links and accommodation. The golf links and the lighthouse are inaccessible to visitors. The Signature Discovery Point is a carpark located south of the Old Head Signal Tower. The site is of historical interest for when the RMS Lusitania sank off the coast of Old Head in the early 20th Century. The Old Head

Plate 3.1: Old Head of Kinsale, County Cork

Signal Tower has been refurbished and was opened in May 2015.

It has a car park and is free for visitors to enter. The Old Head Signal Tower site consists of road access, parking for 18 cars and 2 buses, a flag and ball signalling system with a mast 15 metres high, and the signal tower which is open to visitors. There are also refreshment and toilet facilities on site.



Figure 3.1 Site context map of the Old Head signature discovery point.

3.1.2 Ecological Constraints

The Old Head of Kinsale Discovery Point layby occurs approximately 250m north of the Old Head of Kinsale SPA. 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.

Table 3.1 Designated sites in proximity to Old Head of Kinsale and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000100	Old Head of Kinsale pNHA	N/A	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	NPWS 2018 ⁵	The Discovery Point occurs ca 250m north of the SPA.	<u>Annex I Species:</u> Guillemot (<i>Uria aalge</i>) [A199] <u>Other Species:</u> Kittiwake (<i>Rissa tridactyla</i>) [A188]

3.1.3 Baseline Ecology of Study Area

A total of ten quadrats were located at the Old Head of Kinsale as summarised in Table 3.1 and their locations have been mapped in Figure 3.2.

There are well worn trails through the clifftop habitats and along the cliff edge walks. There is also evidence of erosion and soil compaction at vantage points along the walk. At these points there is no vegetation present, and incidences of 100% bare soil. The extreme cliff edge is dominated by sea pink (*Armeria maritima*) and kidney vetch (*Anthyllis vulneraria*) with other common species such as ribwort plantain (*Plantago lanceolata*) and Catsear (*Hypochaeris radicata*) being present. Along the well-established desire lines there were a high abundance of common daisy (*Bellis perennis*). The wider area is dominated by a mosaic of grasslands; namely Dry Calcareous and Neutral Grasslands (GS1), Dry Meadows and Grassy Verges (GS2) and Improved Agricultural Grasslands (GA1). Large numbers of kittiwakes were recorded foraging offshore during the survey.

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

Table 3.2 Summary details of each quadrat recorded at Old Head of Kinsale

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
OHK-Q1	Core	BL3 Buildings and artificial surfaces	N/A	Carpark	Good
OHK-Q2	Core	GS2 Dry meadows and grassy verges	N/A	Roadside verge	Good
OHK-Q3	Secondary	GA1 Improved Agricultural Grasslands	N/A	Meadow/Silage	Good
OHK-Q4	Secondary	GS1 Dry Calcareous and Neutral Grasslands	N/A	Meadow/Silage	Fair
OHK-Q5	Secondary	GA2 Amenity Grasslands	N/A	Recreation	Good
OHK-Q6	Secondary	GS1 Dry Calcareous and Neutral Grasslands	N/A	Recreation	Fair
OHK-Q7	Secondary	GS1 Dry Calcareous and Neutral Grasslands	N/A	Recreation	Doubtful
OHK-Q8	Secondary	GS1 Dry Calcareous and Neutral Grasslands	N/A	Recreation	Fair
OHK-Q9	Secondary	GS1 Dry Calcareous and Neutral Grasslands	N/A	Recreation	Poor
OHK-Q10	Tertiary	GS1 Dry Calcareous and Neutral Grasslands	N/A	Recreation	Good

⁵ NPWS (2018) Conservation objectives for Old Head of Kinsale SPA [004021]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

⁶ Land use Definitions:

- Amenity – the inherent attraction of a sites ecological features
- Recreation – the use of a site for activities which use existing features

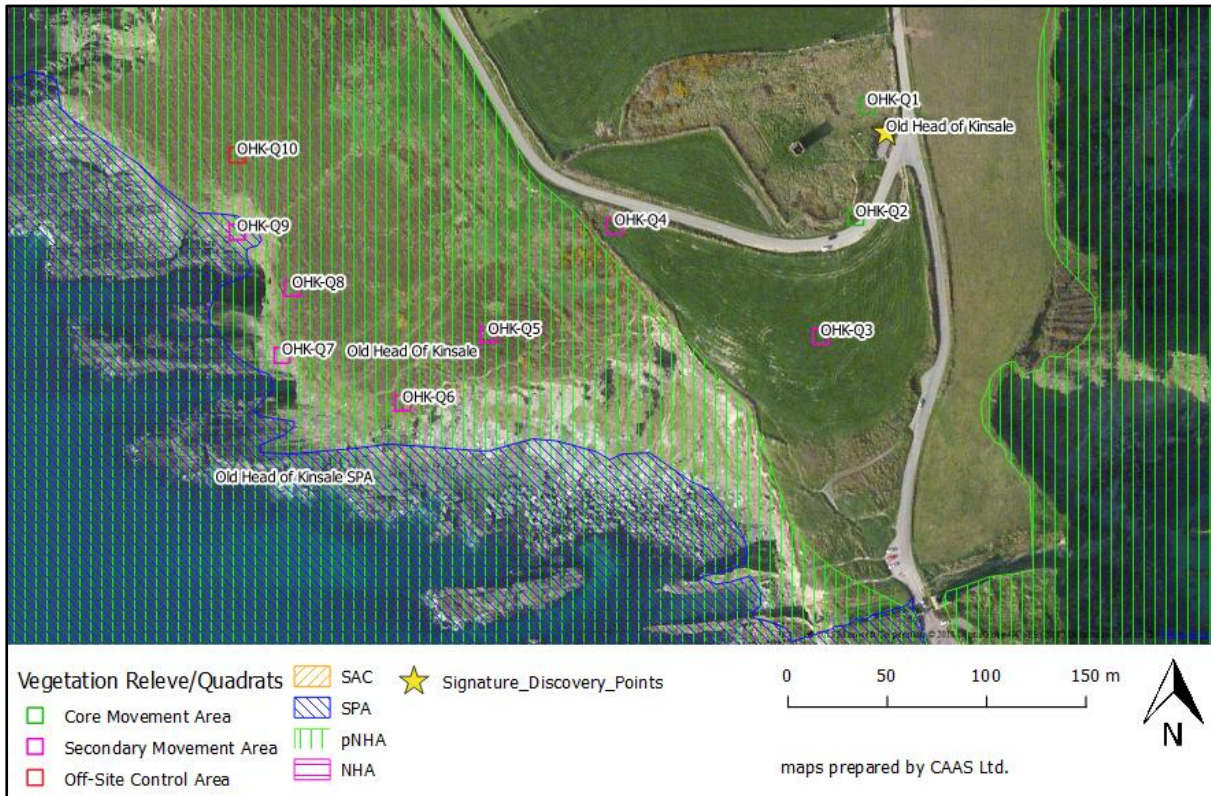


Figure 3.2 Old Head of Kinsale discovery point. The location of quadrats and designated sites are indicated.

3.1.4 Preliminary Assessment of Visitor Activities ⁷

Visitors at the Old Head of Kinsale trafficked the Core zone 380 times and the Secondary zone 178 times. Less than 32% of all visitor movements observed were within the secondary zone.

70% of visitors resulted in no identifiable environmental effect on the site. Good visitor management is in place at Old head which contributes towards good visitor behaviour, in turn results in few effects recorded.

12% of visitors took part in medium level activities at the discovery point. This resulted from visitors leaving paved areas walking through long grass leaving desire lines; visitors were also observed to throw litter while taking photographs. There were few incidences of High-level impacts recorded, 0.9% accounted for high-level effects caused by one child throwing stones.

There is damage to the clifftop vegetation evident through trampling causing erosion at key vantage points where visitor movements are concentrated.

3.1.4.1 Old Head of Kinsale SPA

The SSCOs for the site are Generic Version 6.0 and state the following objective:

To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA

The site is designated for Kittiwake and Guillemots; the standard data from for the site details a list of pressures to include: recreational activities such as golf. The cliffs to the west of Old Head of Kinsale had large numbers of kittiwakes recorded. These are removed from the visitor movement areas and

⁷ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

there were no activities identified by the visitor monitoring data³ that were identified to impact the birds at the discovery point during the survey. The topography of the site limits visitors' access to the cliff face itself which is the key habitat feature for the special conservation interest species.

3.1.4.2 Old Head of Kinsale pNHA

There is no data available on the NPWS website in relation to this designation and there is no information contained in the NPWS Site Synopsis Portfolio for pNHAs for the site.

3.1.5 Recommendations

Visitor movements are concentrated at key vantage points along the informal marked trails resulting in the removal of vegetation and exposed soil areas. Further damage should be avoided by controlling/managing visitor access to the damaged areas.

Any site maintenance works or improvements to facilitate the recovery of the clifftop vegetation should be carried out in compliance with Appendix V of the WAW Operational Programme (Site Maintenance Guidelines).

These recommendations are consistent with the recommendations made in 2015 (Table 3.3) and show that the same issues exist at the site. Therefore, the upgrades to the site facilities have not reduced the impacts/effects observed on site.

Table 3.3 Recommendations from the Ecological Surveys Undertaken in 2015 for the Old Head of Kinsale

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.

3.2 Mizen Head, County Cork

3.2.1 Site Description

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



Plate 3.2: Mizen Head Walkway and Cliffs

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.

The 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.



Figure 3.3 Site context map of the Mizen Head signature discovery point.

3.2.2 Ecological Constraints

The areas visited are largely within the Three Castle Head to Mizen Head SAC/pNHA (see Table 3.4 and Figure 3.4). 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. There are no site-specific threats identified by the NPWS for any of the designated areas.

Table 3.4 Designated sites in proximity to Mizen Head and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000109	Three Castle Head to Mizen Head SAC/pNHA	NPWS 2016 ⁸	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	NPWS 2018 ⁹	The Discover Point occurs within the SPA.	Annex I Bird Species: Peregrine (<i>Falco peregrinus</i>) [A103] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]

3.2.3 Baseline Ecology of Study Area

As visitor movements are strictly controlled on site, the habitats were not accessible to facilitate the collection of Quadrat Data. However, a detailed species list of all species observed on site was generated (Table 3.5) to indicate the species richness and community composition present at Mizen Head.

The discovery point comprises of Buildings and Built Surfaces (BL3) which are contained by robust fencing to filter all visitors and contain potential effects. The surrounding habitat outside of the built structures are a mosaic of Dry calcareous and neutral grassland (GS1) and Dry siliceous heath (HH1). There are also patches of Exposed rock (ER).

Table 3.5 Summary details of species recorded at Mizen Head

Scientific Name	Common Name	Abundance (DOMIN Scale)
Agrostis sp.	Bent	4
Agrostis stolonifera	Creeping Bent	4
Angelica sylvestris	Wild Angelica	5
Armeria maritima	Thrift	4
Calluna vulgaris	Ling Heather	4
Carex panicea	Carnation Sedge	5
Crithmum maritimum	Rock Samphire	1
Cytisus scoparius subsp. maritimus	Prostrate Broom	7
Erica cinerea	Bell Heather	7
Euphrasia sp.	Eyebright	3
Festuca ovina	Sheep's-fescue	4
Festuca rubra	Red Fescue	7
Holcus lanatus	Yorkshire-fog	4
Hypochaeris radicata	Cat's-ear	3
Lotus corniculatus	Common Bird's-foot-trefoil	3
Moss acrocarpus	Moss	3
Plantago lanceolata	Ribwort Plantain	3
Plantago maritima	Sea Plantain	6
Potentilla erecta	Tormentil	3
Senecio jacobaea	Common Ragwort	1

⁸ NPWS (2016) Conservation Objectives: Three Castle Head to Mizen Head SAC 000109. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

⁹ NPWS (2018) Conservation objectives for Sheep's Head to Toe Head SPA [004156]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

Scientific Name	Common Name	Abundance (DOMIN Scale)
<i>Silene uniflora</i>	Sea Campion	3
<i>Spergularia marina</i>	Lesser Sea-spurrey	4
<i>Thymus polytrichus</i>	Wild Garden Thyme	4
<i>Trifolium repens</i>	White Clover	4
<i>Viola riviniana</i>	Common Dog-violet	3

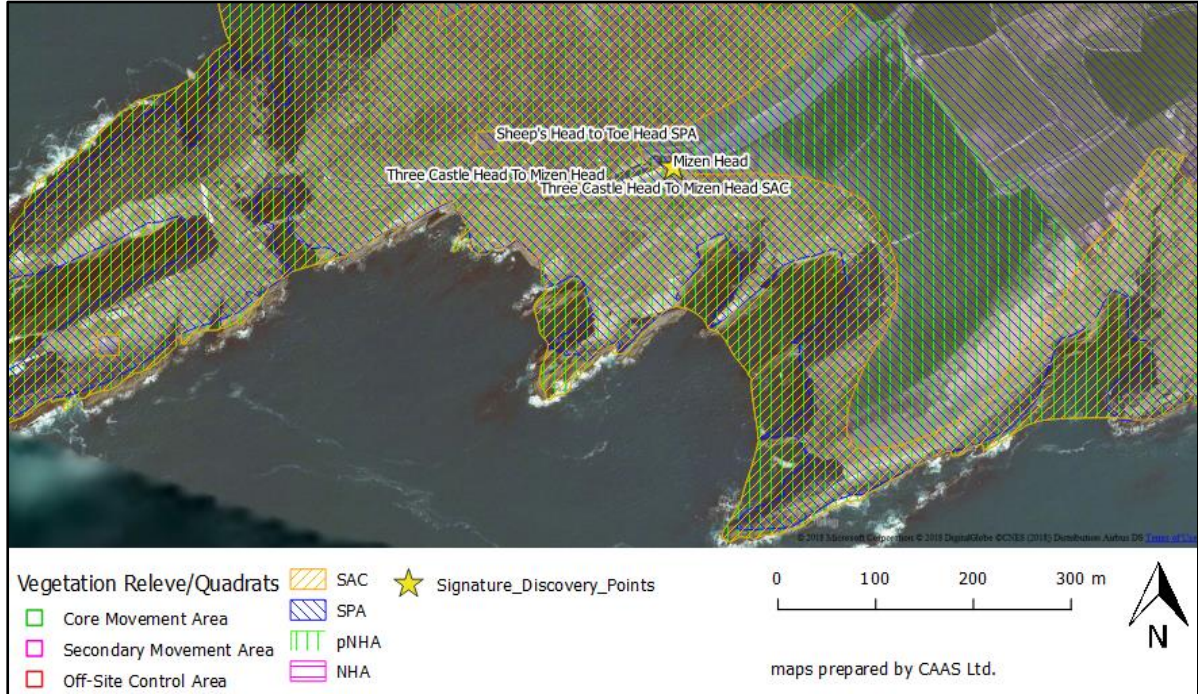


Figure 3.4 Mizen Head discovery point. The locations of designated sites are indicated; no quadrats were used due to restricted access.

3.2.4 Preliminary Assessment of Visitor Activities¹⁰

The Core zone at Mizen head was the predominant area trafficked by visitors during the site visit (366 times) with the Secondary zone being trafficked only once by one group (entering a private field).

95% of visitors had no identifiable environmental effect at the discovery point. 5% of visitors were observed to take part in medium level activities at the discovery point site. Activities included a group entering a private field to pick a large quantity of flowers, one visitor was also observed to fly a drone close to the cliff side, disturbing nesting birds.

It is apparent that the high-level of management at the discovery point contributes towards good visitor behaviour which resulted in few effects observed.

3.2.4.1 Three Castle Head to Mizen Head SAC/pNHA

The SAC is designated for Vegetative sea Cliffs and Dry Heath and the Signature Discovery point is within the SAC boundary. These habitats were identified to be present on site. The conservation objectives for the site relate to the community dynamics, structure function and distribution of the floral communities. The visitor movement patterns identified in the monitoring results shows that the existing built structures ensure that no visitors were observed to move outside of the managed core movement zone. The standard data from for the site details a list of pressures to include: Agricultural activities such as non-intensive grazing and roads and motorways.

¹⁰ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

3.2.4.2 Sheep's Head to Toe Head SPA

The site is designated for the Peregrine (*Falco peregrinus*) and Chough (*Pyrrhocorax pyrrhocorax*) and is also noted to be an important site for birds such as Fulmar (*Fulmarus glacialis*), Herring Gull (*Larus argentatus*), Shag (*Phalacrocorax aristotelis*), Kittiwake (*Rissa tridactyla*), Black Guillemot (*Cepphus grylle*) and Great Black-backed Gull (*Larus marinus*); none of which were recorded during the site visit.

Generic conservation objectives for the Sheep's Head to Toe Head SPA have been published by the NPWS. The main objective of the document is as follows:

'To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA'

Impacts associated with visitors were restricted to the core movement area outlined in the Visitor Observation Report³. There are no potential roost features present within the restricted movement areas and interactions with site vegetation was only recorded directly adjacent to the carparking facilities.

3.2.5 Recommendations

The site is well managed and visitor movements are restricted within the core movement area.

Drone usage at the site was recorded; the drone was observed flying along the cliff face which imposes new threats to the special qualifying interest species of the Sheep's Head to Toe Head SPA. Drone usage at the site should be restricted or managed appropriately.

The observations and recommendations are consistent with the 2015 (Table 3.6) results with the addition of the Drone recommendation.

Table 3.6 Recommendations from the Ecological Surveys Undertaken in 2015 for Mizen Head

Visitors appear to present no adverse impact at this site.
No further ecological monitoring is required at this managed site.

3.3 Dursey Sound (previously named Garnish Point), County Cork

3.3.1 Site Description

Dursey Sound is located on the south-western tip of the Beara Peninsula in Co. Cork, and is the departure point for the cable car to Dursey Island. It is situated about 35 metres above sea level. Dursey Sound Discovery Point is separated from Dursey Island by a narrow sound known for its strong tides.



Beyond the main visitor car parking is a prominent viewing point on the hill overlooking the cable car which runs from Lamb's Head to Dursey Island for tourists. The island is separated from the mainland by a narrow stretch of water called the Dursey Sound which has a very strong tidal race, with a reef of rocks in the centre of the channel which is submerged at high tides. Most of the site is underlain by Devonian

Plate 3.3: Trail to the North of Dursey Sound/Garnish Point carpark.

sandstone, siltstone and mudstone, with small areas of igneous rocks occur at Cod's Head, Dursey Island.

At Dursey Sound, 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 designated 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. The area around Dursey Sound is grazed by sheep, with the exception of the immediate area of the car park. Interpretive material is presented in the car park.

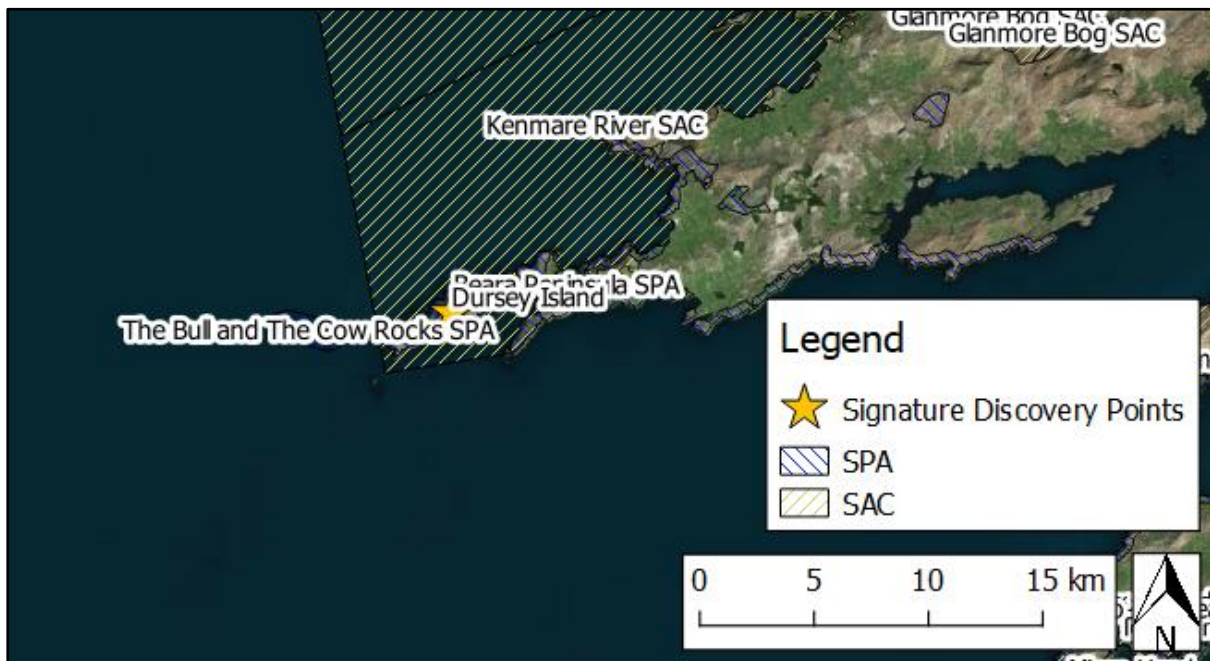


Figure 3.5 Site context map of the Dursey Sound discovery point.

3.3.2 Ecological Constraints

Dursey Sound has three European Sites within the receiving environment, one proposed Natural Heritage Area and no Natural Heritage Areas (Table 3.7). These sites have ecological characteristics for which they have been designated.

The Dursey Sound discovery point occurs ca 140m from the Kenmare River SAC and within the Beara Peninsula SPA. Dry heath, a qualifying habitat of Kenmare River SAC, occurs throughout much of the lands surrounding the car parks at Dursey Sound. 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 discovery point also occurs within Garnish Point pNHA.

Nearby the Bull and the Cow Rocks are home to a large breeding colony of Northern Gannets. The site consists of coastal grasslands, made up of short sward (due to sheep and cattle grazing) and patches of heath overlooking rugged rocky shore habitats and marine waters.

The site forms part of the Beara Peninsula SPA and Chough (*Pyrrhonorax pyrrhonorax*) is listed as a feature of interest for the site. Dursey Island across the Dursey Sound is a well-known site for sea watching and for falls of migrant birds in spring and autumn (e.g. Black Redstart, Hoopoe, Ring Ouzel, Dusky Warbler, Grasshopper Warbler, Yellow-browed Warbler, Little Bunting, Short-eared Owl).

Table 3.7 Designated sites in proximity to Dursey Sound and relevant sensitive ecological receptors

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002158	Kenmare River SAC	NPWS 2013 ¹¹	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 discovery point.</u>
004155	Beara Peninsula SPA	NPWS 2018 ¹²	The Discovery Point occurs within the SPA.	<u>Annex I Bird Species:</u> Chough (<i>Pyrrhonorax pyrrhonorax</i>) [A346] <u>Other Bird Species:</u> Fulmar (<i>Fulmarus glacialis</i>) [A009]
001986	Garnish Point pNHA	N/A	The Discovery Point occurs within the pNHA	NPWS Description from 004155 <u>Annex I Bird Species:</u> Chough (<i>Pyrrhonorax pyrrhonorax</i>) [A346] <u>Other Bird Species:</u> Fulmar (<i>Fulmarus glacialis</i>) [A009]

3.3.3 Baseline Ecology of study area

A total of ten quadrats were located at Dursey Sound as summarised in Table 3.8 and their locations have been mapped in Figure 3.6.

The site has high levels of trampling in the immediate vicinity of the carpark. The surrounding habitat is a mosaic of Dry-humid acid grassland grading into Dry siliceous heath however grazing pressures limit the persistence of heath habitat. These findings are comparative to the assessments undertaken on site from 2015 – 2017.

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

Table 3.8 Summary details of each quadrat recorded at Dursey Sound

¹¹ NPWS (2013) Conservation Objectives: Kenmare River SAC 002158. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹² NPWS (2018) Conservation objectives for Beara Peninsula SPA [004155]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
DS-Q1	Core	GS3 Dry-humid acid grassland	N/A	Amenity/ Transport	Good
DS-Q2	Secondary	GS3 Dry-humid acid grassland	N/A	Amenity/ Transport	Fair
DS-Q3	Core	ED2 Spoil and bare Ground	N/A	Amenity/ Transport	Doubtful
DS-Q4	Secondary	GS3 Dry-humid acid grassland	N/A	Recreation/Grazing	Fair
DS-Q5	Secondary	HH1 Dry siliceous heath	Dry heath [4030]	Recreation/Grazing	Fair
DS-Q6	Secondary	HH1 Dry siliceous heath	Dry heath [4030]	Recreation/Grazing	Good
DS-Q7	Tertiary	GS3 Dry-humid acid grassland	N/A	Recreation/Grazing	Good
DS-Q8	Tertiary	GS3 Dry-humid acid grassland	N/A	Recreation/Grazing	Good
DS-Q9	Core	BL3 Buildings and artificial surfaces	N/A	Amenity/ Transport	Good
DS-Q10	Tertiary	GS3 Dry-humid acid grassland	N/A </tr		

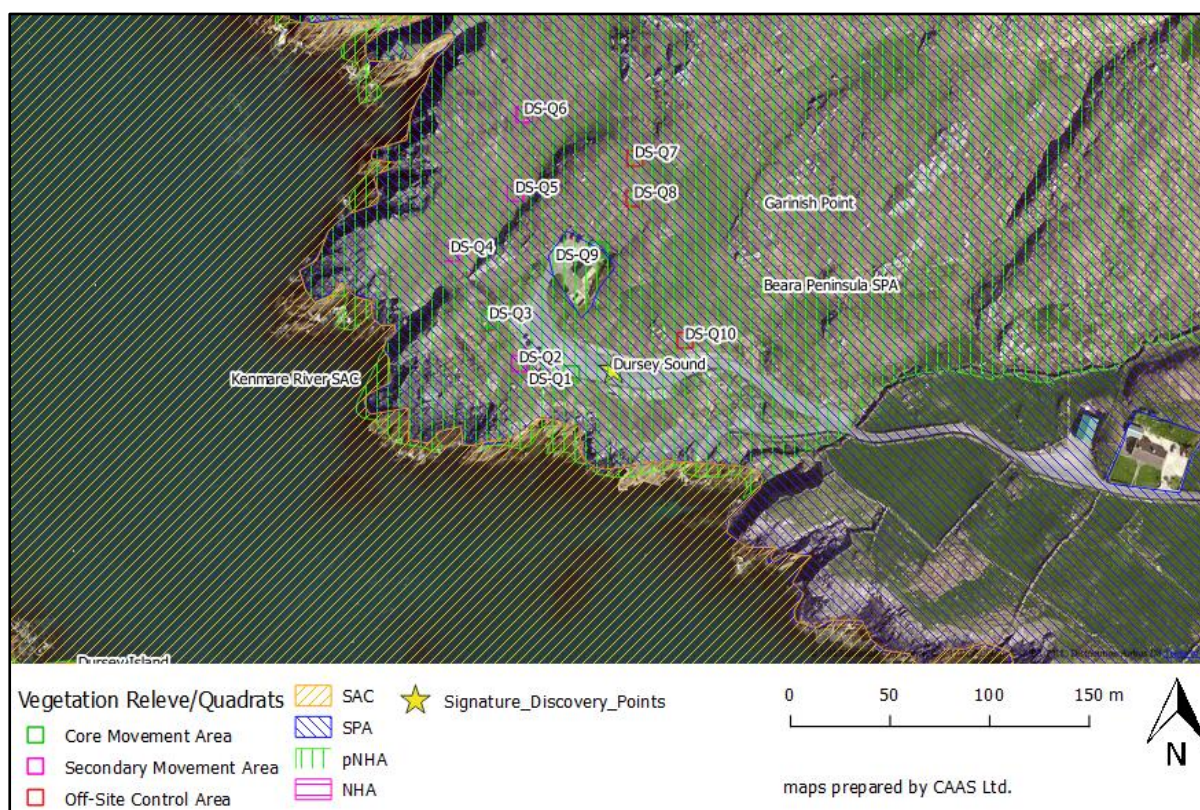


Figure 3.6 Dursley Sound discovery point. The location of quadrats and designated sites are indicated.

3.3.4 Preliminary Assessment of Visitor Activities¹³

Visitor movements were recorded in the Core, Secondary and Tertiary zones at Dursley Sound. The core zone was the predominant area (231 times; over 81% of observed movement), the secondary zone was moved through 37 times resulting from groups going off the main walking trail. The tertiary zone recorded movement 15 times; this came from water-based activities.

52% of visitors had no identifiable environmental effect to the site. 46% of visitors took part in medium level activities. These visitors left the car park to walk through areas where desire lines were evident in the vegetation. Most visitors that left marked trails did so to go to the cliff edge.

¹³ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

1% accounted for high-level activities which came from one visitor fishing.

Overall, the activities observed during the study at Dursey Sound were related to compaction of soils and vegetation within the visitor movement zones.

The site visit identified the presence of spoil heaps and inactive construction machinery. There is evidence of small-scale localised destruction of the vegetation directly adjacent to the carpark. From an assessment of the data from previous years these areas do not contain any rare or protected habitat features or species. There was no evidence present to indicate what the site works were contributing towards.

3.3.4.1 Kenmare River SAC

The SAC is designated for Dry heaths and Sea cliffs. Impacts arising from aquaculture, fishing, dumping of wastes and water pollution are the principal threats to the nature conservation interests of Kenmare River SAC. These activities were not recorded on site. On site threats identified during the visitor monitoring³ included visitor trampling and grazing by sheep. The trampling effects were seen to have low impacts and were localised to within the immediate vicinity of the discovery point at specific pinch points. These effects are consistent with the results of all previous monitoring observations.

3.3.4.2 Beara Peninsula SPA & Garnish Point pNHA

The potential risks to local bird population of current levels of visitors using the site are mainly centred on the risk of increased disturbance to Choughs which use the maritime grasslands along the peninsula to feed and are also known to breed along the coast of the peninsula (Beara Peninsula SPA).

3.3.5 Recommendations

Visitors continue to have minor localised impacts at this site which relate to vegetation compaction, with trampling being present at key pinch point locations.

As with previous year, provisions to minimise impacts from trampling should be explored such as:

- The erection of additional signage at the visitor parking area could provide guidance to visitors walking the trails behind the cable car station to stick to the paths provided and avoid unnecessary disturbance and/or trampling of dry heath and/or ground-nesting birds.
- Erection of temporary moving trails to disperse trampling across the site sequentially or fixed marking of walkways to ensure a unified area is sacrificed to preserve all surrounding habitat.

Any current or future works to facility upgrades must be undertaken in compliance with the WAW Site Maintenance Guidelines. Where possible, spoil heaps and construction vehicles should be stored on hard surfaced areas to avoid impacts to the surrounding vegetation.

Any increase in visitor numbers to the site should require a review of current road access from the main Allihies to Castletownbere road which is extremely narrow for larger vehicles such as camper vans and should consider road safety considerations and local residents.

These recommendations are in line with those identified as part of the monitoring program from all previous years 2015 – 2017.

3.4 Bray Head, County Kerry

3.4.1 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 3.4: View from the Bray Head Carparking facility

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.

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

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

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



Figure 3.7 Site context map for the Bray Head signature discovery point.

3.4.2 Ecological Constraints

The Valencia Harbour/Portmagee Channel SAC is adjacent to the site however it is designated for coastal and marine habitats and the Signature Discovery point is isolated from the SAC by a cliff.

The site overlaps with the Iveragh Peninsula SPA which is designated for three bird species although there are no roost features on site, and the majority of the visitor movements were contained within the core movement zones³.

Table 3.9 Designated sites in proximity to Bray Head and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002262	Valencia Harbour/Portmagee Channel SAC	NPWS 2012 ¹⁴	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	NPWS 2018 ¹⁵	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	N/A	The Discovery Point occurs within the pNHA.	Vegetated Sea Cliffs Sea Birds

3.4.3 Baseline Ecology of study area

A total of seven quadrats were located at Bray Head as summarised in Table 3.10 and their locations have been mapped in Figure 3.8.

The habitats present on site included buildings and artificial surfaces (BL3), amenity grassland (GA2) Improved Agricultural Grasslands (GA1), dry calcareous and neutral grassland (GS1) and dry heath (HH1). The vegetated sea cliffs that occur ca 100m south of the Discovery Point provide suitable breeding habitat for cliff-nesting birds. The area between the carpark and the clifftop is a mosaic of HH1 and GS1 with fescue grasses being the dominant species.

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

Table 3.10 Summary details of each quadrat recorded at Bray Head

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
BH-Q1	Secondary	GA2 Amenity grassland (improved)	N/A	None	Good
BH-Q2	Secondary	GA2 Amenity grassland (improved)	N/A	None	Good
BH-Q3	Secondary	GS2 Dry meadows and grassy verges	N/A	Carpark Verge	Good
BH-Q4	Tertiary	GS1 Dry calcareous and neutral grassland	N/A	None	Good
BH-Q5	Tertiary	GA1 Improved agricultural grassland	N/A	Sheep Grazing	Good
BH-Q6	Core	GS2 Dry meadows and grassy verges	N/A	Path/trail verge	Fair
BH-Q7	Secondary	GS2 Dry meadows and grassy verges	N/A	Path/Trail verge	Good

¹⁴ NPWS (2012) Conservation Objectives: Valencia Harbour/Portmagee Channel SAC 002262. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹⁵ NPWS (2018) Conservation objectives for Iveragh Peninsula SPA [004154]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

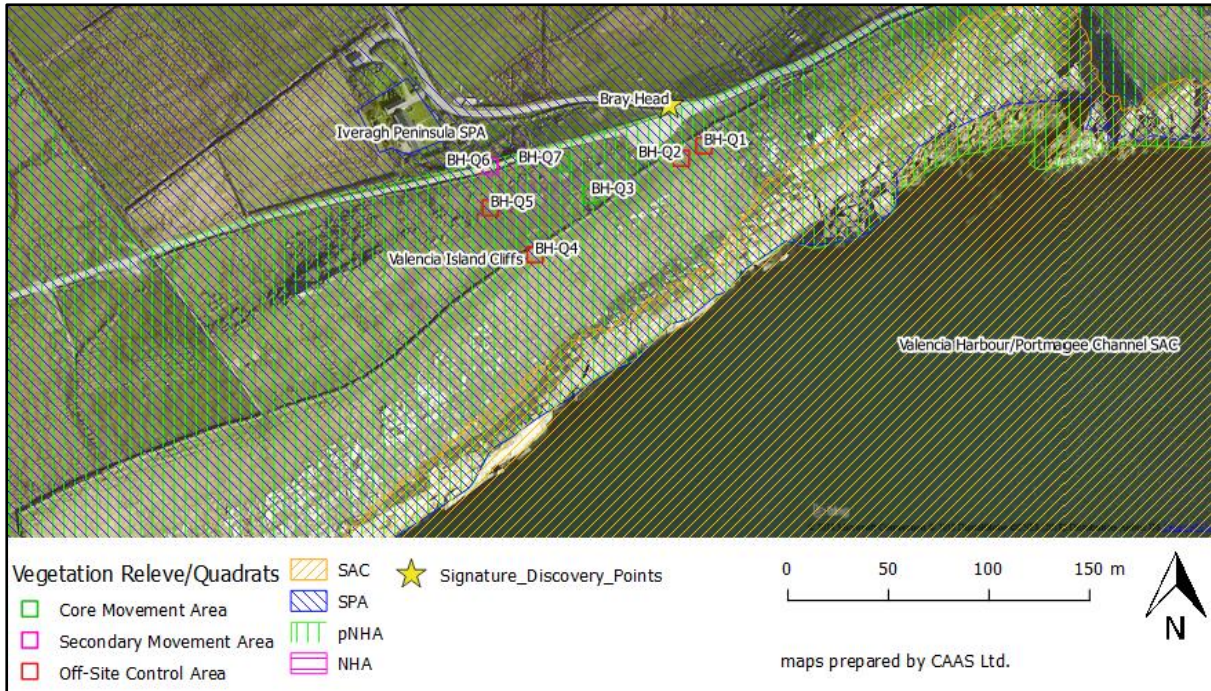


Figure 3.8 Bray Head discovery point. The location of quadrats and designated sites are indicated.

3.4.4 Preliminary Assessment of Visitor Activities¹⁶

98% of visitors had no identifiable environmental effect to the site. Visitor management at this site was good which resulted in less effects.

1% of all visitors were observed to take part in high-level activities.¹⁷

The core zone of Bray Head was trafficked 199 times; 99.5% of the visitor movements observed remained within the marked paths and trails; this resulted in the secondary zone being trafficked only once by a group returning to the car park through the grassland area.

The extent of the visitor monitoring at this site is restricted to the area directly adjacent to the discovery point carpark.

3.4.4.1 Valencia Harbour/Portmagee Channel SAC

The site is designated for tidal mudflats and sandflats, coastal habitats such as shallow inlets and bays and marine reefs. The standard data from for the site details a list of pressures to include: Marine and Freshwater Aquaculture, Recreational activities. (Valencia Harbour/Portmagee Channel SAC). The conservation objectives focus on community composition, structure and functionality as well as habitat area. Bray head is a large headland atop cliffs, and therefore visitor movements are isolated from direct interactions with the SAC. The effects observed in the visitor monitoring are localised and predominantly relate to vegetation compaction on the peripheries of the site.

3.4.4.2 Iveragh Peninsula SPA

The site is designated for Fulmar (*Fulmarus glacialis*), Peregrine (*Falco peregrinus*), Kittiwake (*Rissa tridactyla*), Guillemot (*Uria aalge*) and Chough (*Pyrrhocorax pyrrhocorax*). It is also noted that the site holds nationally important populations of Guillemot, Fulmar and Kittiwake.

¹⁶ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

¹⁷ A child from a large group observed to throw stones.

Generic conservation objectives for the Dingle Peninsula SPA have been published by the NPWS. The main objective of the document is as follows:

'To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA'.

The visitor movements³ patterns showed that visitors remained on the walkway and built structures within the core zone in all instances, except in the area directly adjacent to the carpark. Beyond the immediate vicinity of the carpark, there were no impacts to habitats identified and all visitor movements beyond this point were restricted to the managed pathway.

3.4.4.3 Valentia Island Cliffs pNHA

There is no data available on the NPWS website in relation to this designation and there is no information contained in the NPWS Site Synopsis Portfolio for pNHAs for the site.

3.4.5 Recommendations

The signature discovery point is well managed and well maintained. The assessment focused on the receiving environment of the discovery point which showed visitors had no identifiable effect on the receiving environment.

Monitoring efforts at this site could be developed to incorporate the wider area and observe visitor movements patterns around the headland and not just the receiving area of the discovery point.

These recommendations were consistent with those suggested in 2015 (Table 3.11).

Table 3.11 Recommendations from the Ecological Surveys Undertaken in 2015 for Bray Head

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.

3.5 Blasket View, County Kerry

3.5.1 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 3.5: Blasket View carpark facility

The Site is in view of the Sleah Head Beach, which comprises of a built slipway down the cliff face to a secluded bay which has associated car parking facilities.

The study area includes areas of amenity grassland and grassy verges. With a high turnover of traffic and buses stopping. The road leading up to the Site is part

of the Dingle Loop which is a two-way road; However, the signage promotes unidirectional travel due to the narrow and winding clifftop roads.

No evidence of grazing was noted within the site during the 2018 quadrat survey. Sheep graze the fields to the west of the visitor car park and road.

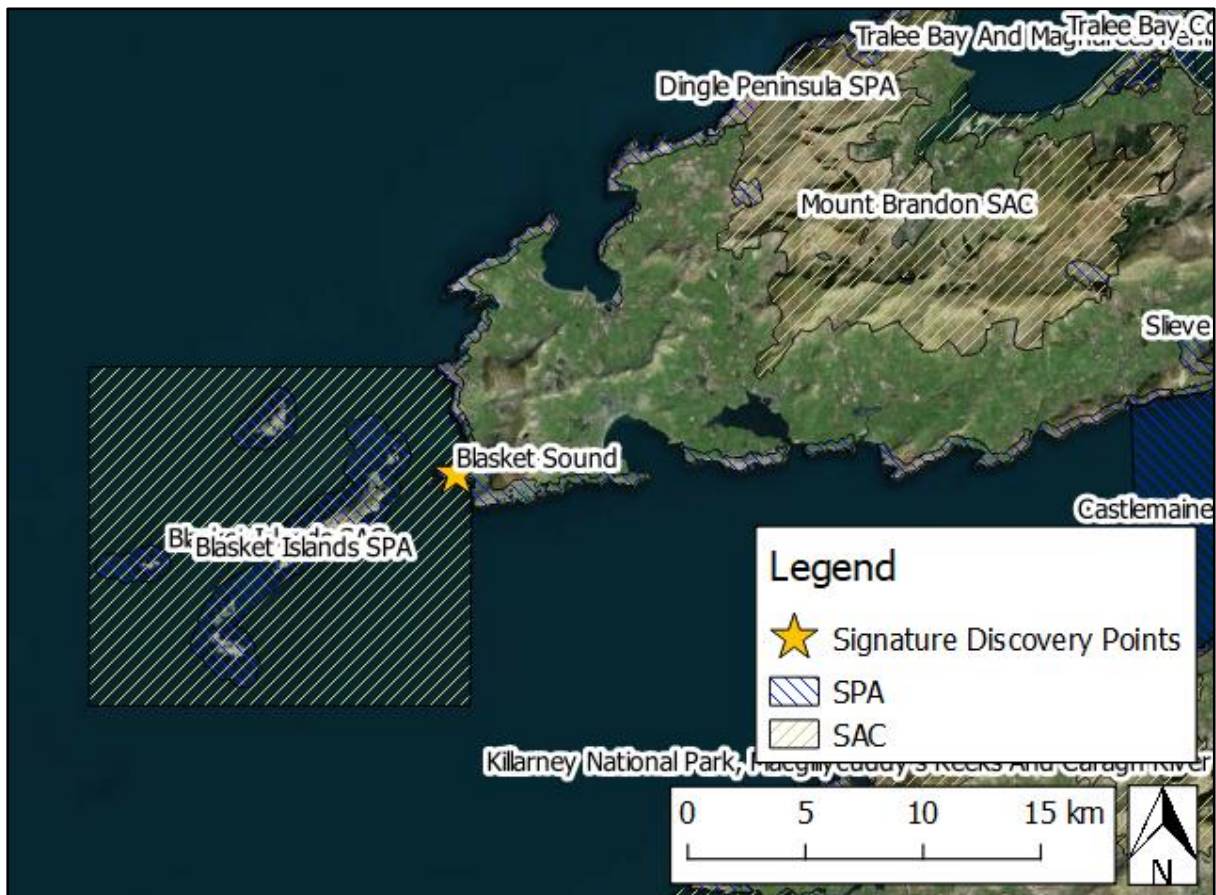


Figure 3.9 Site context map for the Blasket View signature discovery point.

3.5.2 Ecological Constraints

The Radharc na mBlascaodaí Discovery Point occurs approximately 130m east of the Blasket Islands SAC (see Table 3.12 and Figure 3.10). 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 3.12 Designated sites in proximity to Blasket View and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002172	Blasket Islands SAC	NPWS 2014 ¹⁸	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	NPWS 2018 ¹⁹	The Discovery Point occurs immediately adjacent to the SPA.	<u>Annex I Bird Species:</u> Peregrine (<i>Falco peregrinus</i>) [A103] Chough (<i>Pyrrhcorax pyrrhcorax</i>) [A346] <u>Other Species:</u> Fulmar (<i>Fulmarus glacialis</i>) [A009]
001377	Sleah Head pNHA	N/A	The Discovery Point occurs immediately adjacent to the pNHA.	Coastal habitats Sea Birds

3.5.3 Baseline Ecology of Study Area

A total of six quadrats were located at Blasket View as summarised in Table 3.13 and their locations have been mapped in Figure 3.6.

The site has high levels of trampling in the immediate vicinity of the carpark and lower viewing areas. It comprises of managed amenity grasslands, with grassy verges present on the periphery of the site and along the roadside. There are no species of note recorded on site and the surrounding area is agriculturally dominated with sheep grazing being the predominant land use. The site is a layby with some picnic facilities overlooking cliffs.

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

Table 3.13 Summary details of each quadrat recorded at Blasket View

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
BV-Q1	Core	BL3 Buildings and artificial surfaces	N/A	Recreation	Good
BV-Q2	Core	GA2 Amenity grassland (improved)	N/A	Recreation	Good
BV-Q3	Core	GA2 Amenity grassland (improved)	N/A	Recreation	Good
BV-Q4	Tertiary	GS1 Dry Calcareous and Neutral Grassland	N/A	Recreation	Good
BV-Q5	Core	GS2 Dry meadows and grassy verges	N/A	Recreation	Good
BV-Q6	Tertiary	GS2 Dry meadows and grassy verges	N/A	Farm Access	Good

¹⁸ NPWS (2014) Conservation Objectives: Blasket Islands SAC 002172. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹⁹ NPWS (2018) Conservation objectives for Dingle Peninsula SPA [004153]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht

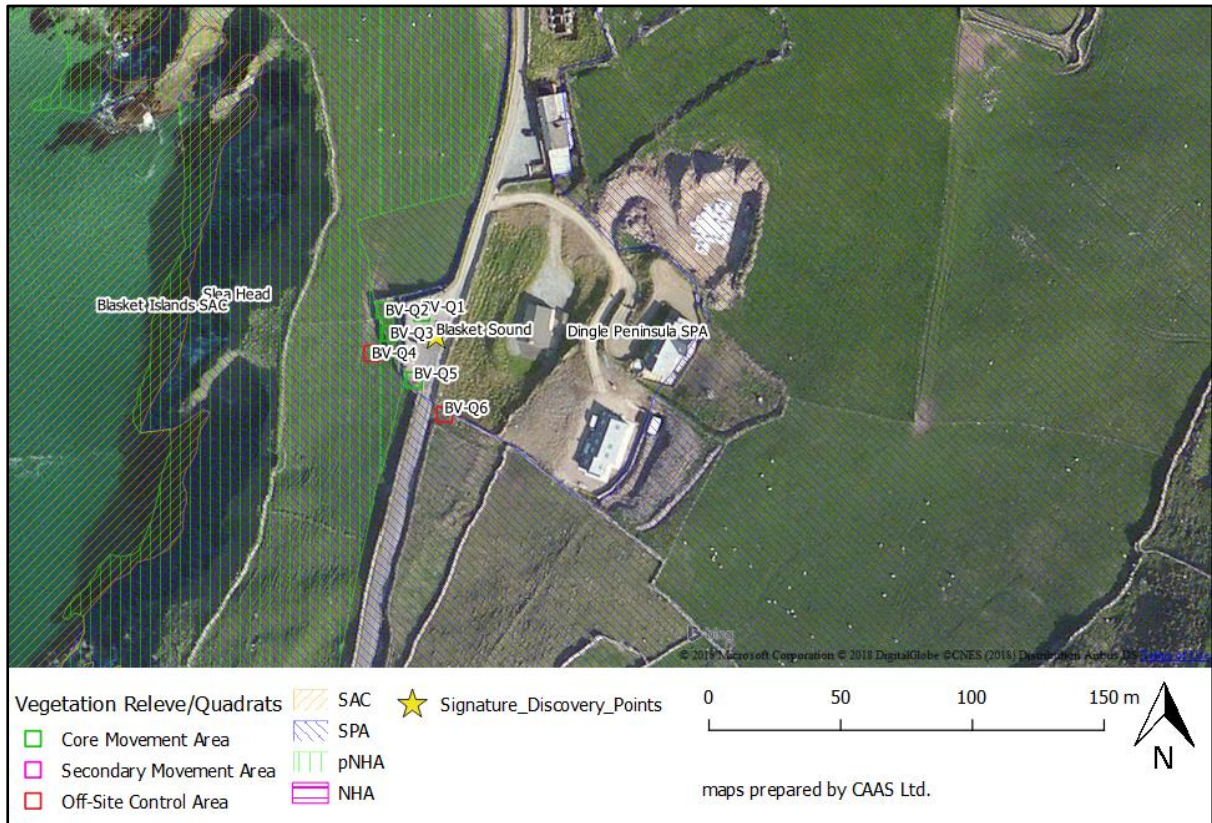


Figure 3.10 Blasket View discovery point. The location of quadrats and designated sites are indicated.

3.5.4 Preliminary Assessment of Visitor Activities²⁰

The Core Zone was the only area trafficked by visitors at Blasket View (259 times).

97% of visitors to Blasket View had no identifiable environmental effect to the site.

This is a well-managed site with visitors being aware of sensitivities in the area.

3.5.4.1 Blasket Islands SAC

The site is designated for habitat features such as vegetative sea cliffs, dry heaths, sea caves and reef systems. These habitat features are located on the Blasket islands themselves or offshore in the Atlantic Ocean in the case of the reef habitats. The SAC is also designated for Harbour Porpoise (*Phocoena phocoena*) and Grey Seal (*Halichoerus grypus*), the SAC boundary follows the coastal edge in this regard. The Signature Discovery point is distinctly removed from the SAC boundary due to the topography and height above sea level.

3.5.4.2 Dingle Peninsula SPA

The Dingle Peninsula SPA is designated for three bird species; namely Fulmar (*Fulmarus glacialis*), Peregrine (*Falco peregrinus*) and Chough (*Pyrhacorax pyrrhacorax*). The SPA site synopsis also identifies Razorbill (*Alca torda*), Herring Gull (*Larus argentatus*), Lesser Black-backed Gull (*Larus fuscus*), Shag (*Phalacrocorax aristotelis*) and Great Black-backed Gull (*Larus marinus*); none of which were recorded during the site visit.

Generic conservation objectives for the Dingle Peninsula SPA have been published by the NPWS. The main objective of the document is as follows:

²⁰ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

'To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA'

Impacts associated with visitors were restricted to the core movement area outlined in the Visitor Observation Report³. The site has very low ecological value given the nature of the site; managed amenity grassland and built surfaces. There are no potential roost features present on site. The topographic characteristics and remote nature of the site limit the capacity which acts as natural protection from over tourism for the ecological interest species.

3.5.4.3 Slea Head pNHA

There is no data available on the NPWS website in relation to this designation and there is no information contained in the NPWS Site Synopsis Portfolio for pNHAs for the site.

3.5.5 Recommendations

The site is robust and well managed. This is consistent with the recommendations from 2015 (Table 3.14).

Table 3.14 Recommendations from the Ecological Surveys Undertaken in 2015 for Blasket View

No potential ecological impacts recorded.
No further ecological monitoring is required at this managed site.

3.6 Loop Head, County Clare

3.6.1 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, subject to a fee. Loop Head Lighthouse is managed by Clare County Council.



Plate 3.6: Loop Head viewpoint looking back over the north of the peninsula

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

The study area was a mosaic of dry heath and maritime grasslands with notable tussocks and interesting growth forms present. The area directly adjacent to the carpark showed signs of heavy compaction which appeared to be used as an extension to the exiting carpark. During the 2018 survey 2 cars were observed to be parked on this compacted grass area and an SUV was seen driving across the maritime grassland to view the headland.

The study area was a mosaic of dry heath and maritime grasslands with notable tussocks and interesting growth forms present.

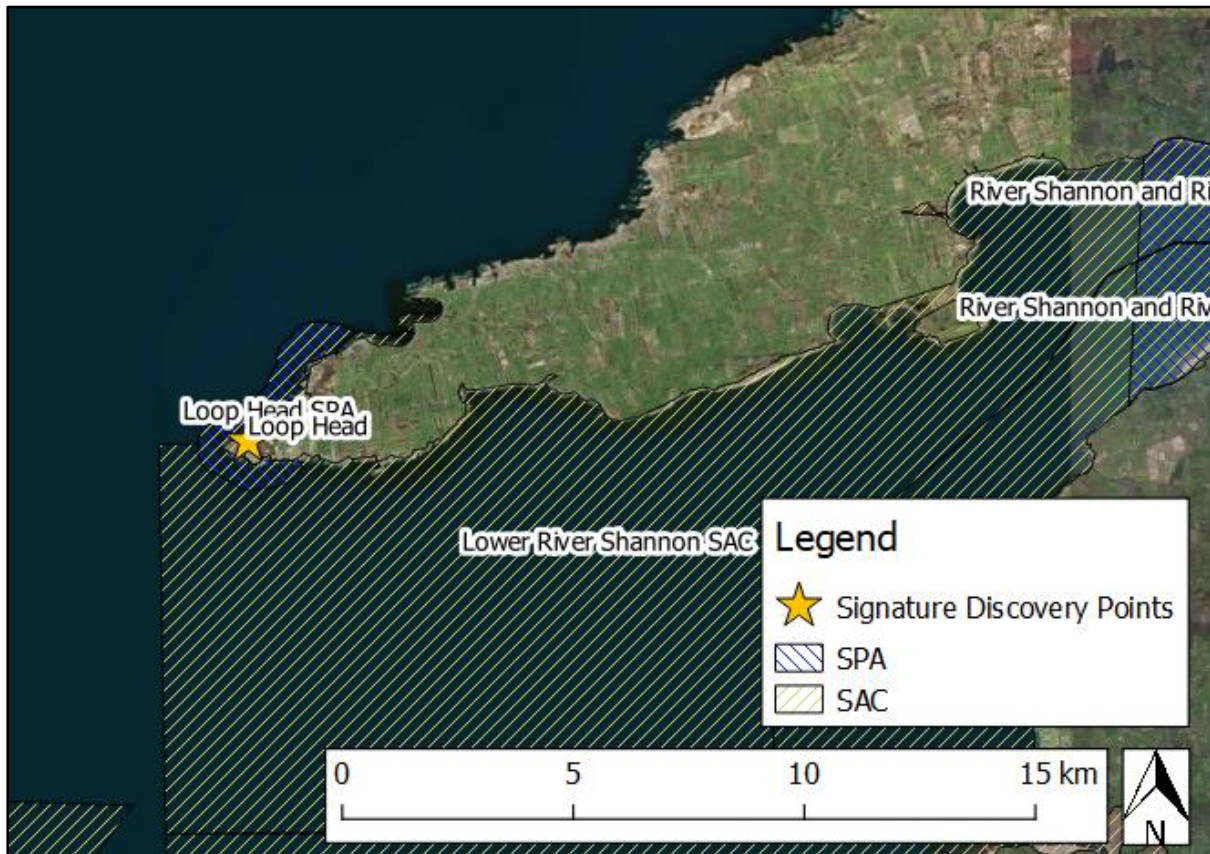


Figure 3.11 Site context map for the Loop Head signature discovery point.

3.6.2 Ecological Constraints

The Loop Head Signature Discovery point carpark is within the Lower River Shannon SAC and directly adjacent to the Loop Head SPA.

The SAC has a 21 qualifying interests, seven Annex II species and fourteen Annex I habitat features. However, the only qualifying interest present at the discovery point is *Vegetated Sea Cliffs of the Atlantic and Baltic Coasts [1230]*. The site synopsis details sea lavender (*Limonium recurom subsp. pseudotranswallianum*), rare and endemic lavender species, to be present near Loop Head. A specific search for this species was undertaken within the area found to be trafficked by visitors³; no records were made. Clifftop vegetation usually comprises of grassland and maritime heath, which was observed to be present during the surveys.

Table 3.15 Designated sites in proximity to Loop Head and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002165	Lower River Shannon SAC	NPWS 2012 ²¹	The Discovery Point occurs immediately adjacent to the SAC.	<u>Fourteen terrestrial, freshwater, and marine Annex I habitats. The only habitats relevant to the Discovery Point is:</u> Sea cliffs <u>Seven Annex II Species.</u>
004122	Loop Head SPA	NPWS 2018 ²²	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	N/A	The Discovery Point occurs immediately adjacent to the pNHA.	Peregrine Falcon (<i>Falco peregrinus</i>)

3.6.3 Baseline Ecology of study area

A total of twelve quadrats were located at Loop Head as summarised in Table 3.16 and their locations have been mapped in Figure 3.12.

The habitats present on site are a mosaic of maritime grassland and heath. The species present are typical of clifftop vegetation and are in very good condition. There are signs of heavy compaction directly adjacent to the carpark area, and worn trails from visitor movements along the clifftops to viewing points. The broader site shows signs of peat splitting, leaving exposed siliceous rock. This is naturally occurring given the topography and exposed nature of the receiving environment.

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

Table 3.16 Summary details of each quadrat recorded at Loop Head²³

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
LH-Q1	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Fair
LH-Q2	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Fair
LH-Q3	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Fair
LH-Q4	Secondary	HH1 Dry siliceous heath	Dry heath [4030]	Recreation	Fair

²¹ NPWS (2012) Conservation Objectives: Lower River Shannon SAC 002165. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

²² NPWS (2018) Conservation objectives for Loop Head SPA [004122]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

²³ The habitats identified within the quadrats were based on community composition, topography and physical features such as soil stability etc. The supporting data can be found in Appendix I. These data were cross referenced against the habitat maps in Appendix XIII of the NPWS (2012) Lower River Shannon SAC (site code 2165) Conservation objectives supporting document - coastal habitats and it was determined that these habitats were outside of the areas identified for as [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts. However, this has been identified as a potential mapping error and the habitats present along the cliff top areas may be revised to be included under this designation pending a review.

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment										
LH-Q5	Secondary	HH1 Dry siliceous heath	Dry heath [4030]	None	Good										
LH-Q6	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Fair										
LH-Q7	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Good										
LH-Q8	Secondary	GS2 Dry meadows and grassy verges	N/A	Recreation	Good										
LH-Q9	Secondary	HH1 Dry siliceous heath	N/A	Recreation	Good										
LH-Q10	Secondary	GS2 Dry meadows and grassy verges	N/A </tr <tr> <td>LH-Q11</td> <td>Tertiary</td> <td>HH1 Dry siliceous heath</td> <td>Dry heath [4030]</td> <td>None</td> <td>Good</td> </tr> <tr> <td>LH-Q12</td> <td>Tertiary</td> <td>HH1 Dry siliceous heath</td> <td>Dry heath [4030]</td> <td>None</td> <td>Good</td> </tr>	LH-Q11	Tertiary	HH1 Dry siliceous heath	Dry heath [4030]	None	Good	LH-Q12	Tertiary	HH1 Dry siliceous heath	Dry heath [4030]	None	Good
LH-Q11	Tertiary	HH1 Dry siliceous heath	Dry heath [4030]	None	Good										
LH-Q12	Tertiary	HH1 Dry siliceous heath	Dry heath [4030]	None	Good										

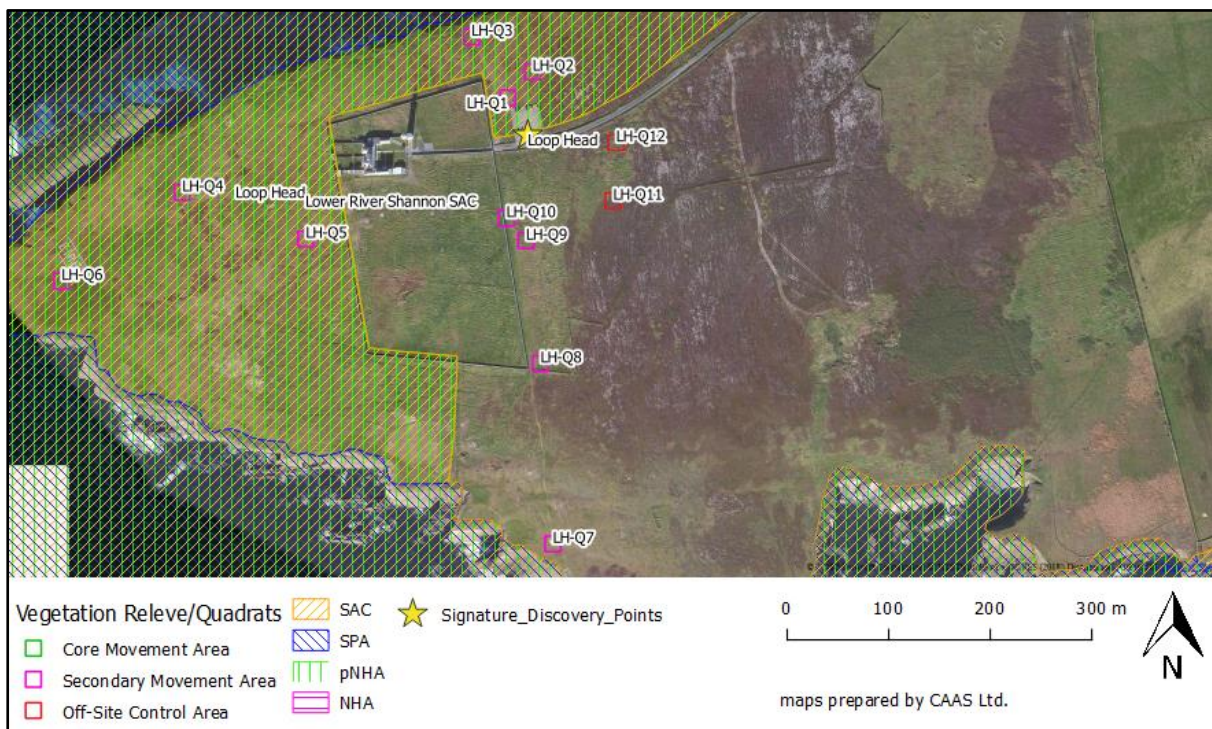


Figure 3.12 Loop Head discovery point. The location of quadrats and designated sites are indicated.

3.6.4 Preliminary Assessment of Visitor Activities²⁴

Loop head was trafficked by visitors in the Core (211), Secondary (188) and Tertiary (4) zones. 47% of visitor movements were recorded outside of the core areas.

78% of visitors had no identifiable environmental effect on the site. Desire line were evident where visitors walked along the headland and a further 8% of visitor activities were identified as low.

12% of the overall activities observed were medium level activities associated with trampling of herbaceous vegetation.

3.6.4.1 Lower River Shannon SAC

The clifftop vegetation shows signs of heavy compaction directly adjacent to the carpark. This area was observed to be used as a carpark spill over area when the carpark reached capacity. The desire lines created by visitor movements are similar to those identified in 2015²⁵, these desire lines are dominated

²⁴ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

²⁵ CAAS (2015); 2015 Ecological Study of Visitor Movement Areas for the Environmental Surveying and Monitoring of the Wild Atlantic Way Operational Programme: Fáilte Ireland

by fescue grass and other disturbance tolerant species. The fringes of these tracks have nettles, dandelions and other disturbance tolerant species. Overall the habitat was in very good condition, and the visitor movements are contained along existing demarcated desire lines; effects observed were localised and improved visitor management could reduce the effects in these areas.

3.6.4.2 Loop Head SPA

The two special conservation interest species, Kittiwake (*Rissa tridactyla*) and Guillemot (*Uria aalge*), are known to use the cliffs for roosting. The habitat features which are of importance for these species are removed from the visitor movement zones³. The visitor movement patterns and activities observed had low-level effects like disturbance due to anthropogenic presence and minor trampling.

3.6.4.3 Loop Head pNHA

There is no data available on the NPWS website in relation to this designation and there is no information contained in the NPWS Site Synopsis Portfolio for pNHAs for the site.

3.6.5 Recommendations

The existing carpark is small and there is evidence of the surrounding habitat being used as unrestricted parking facilities. The site should explore options to reduce risk to the surrounding habitats such as the placement of rocks around the carpark boundary to reduce vehicular access but maintain the natural landscape character. Any on site works must be undertaken in compliance with the WAW Site Maintenance Guidelines to ensure no adverse effects to the environment occur as a result of any proposed works. Similarly, all works must be undertaken in compliance with the EU Habitats Directive (Council Directive 92/43/EEC) and all other relevant environmental legislation.

There is evidence of soil/peat compaction along localised desire lines although the overall habitat condition is good. If visitor numbers were to increase the site could benefit from on site management of trails; such as the use of alternating trails marked with ankle high guidance ropes with minimal impact pegs inserted into the ground. These trails could be moved regularly to disperse the potential effects along the grassland areas to prevent exposing soil/peat along the marked trails.

These recommendations build and expand on those proposed in 2015 (Table 3.17). Visitor effects at this site have increased since those recorded in 2015.

Table 3.17 Recommendations from the Ecological Surveys Undertaken in 2015 for Loop Head

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.
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3.7 Cliffs of Moher, County Clare

3.7.1 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'Briens 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.



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.

Plate 3.7: Cliffs of Moher view looking southward

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.

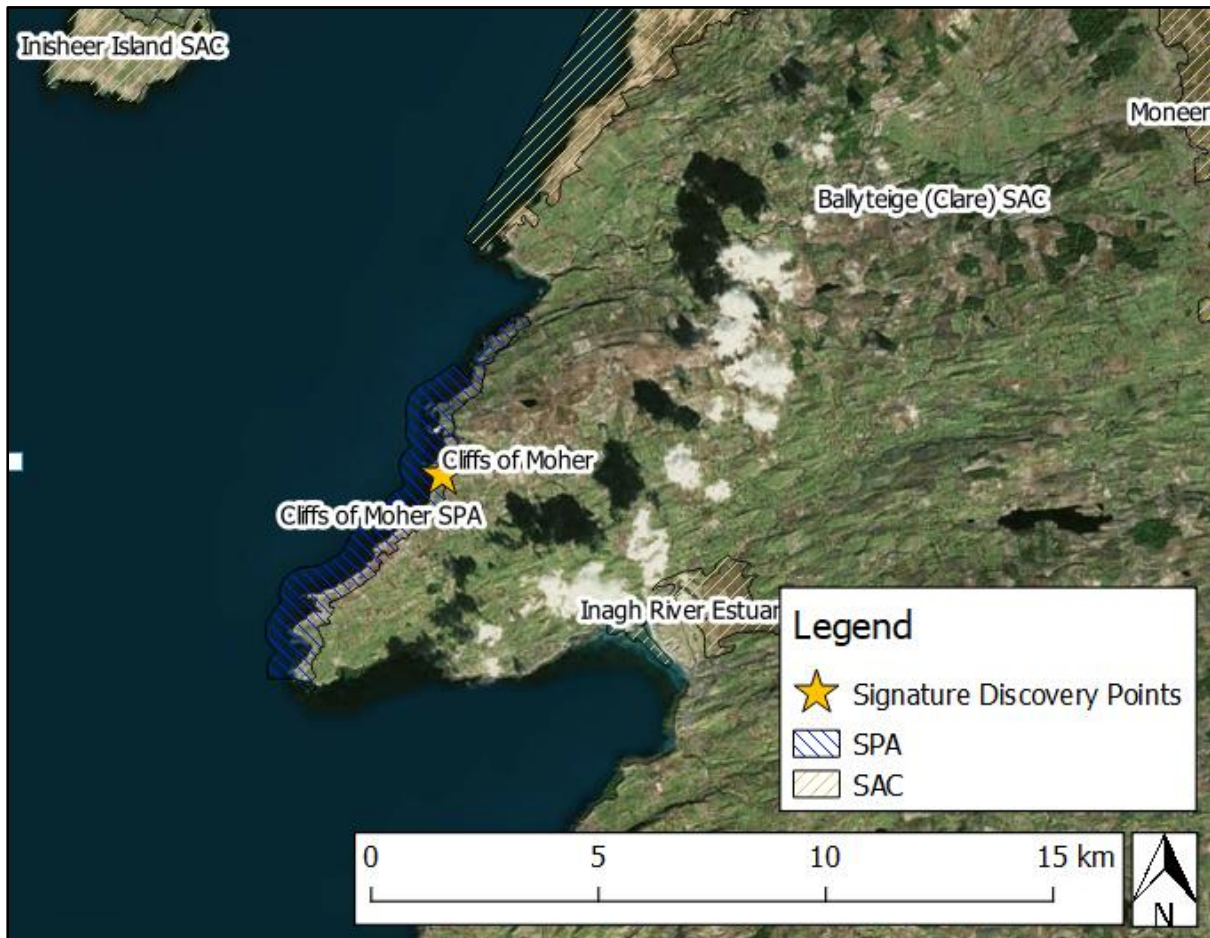


Figure 3.13 Site context map for the Cliffs of Moher signature discovery point.

3.7.2 Ecological Constraints

The area surrounding the Cliffs of Moher Signature Discovery point is dominated by improved agricultural grassland (GA1) which is managed as a perennial ryegrass monoculture. The grazing regime within the area maintains a critically low floral diversity in the surrounding area. There are no records of any rare or protected floral species within the receiving area of the discovery point.

The cliffs themselves and the sea stacks adjacent to the Signature Discovery point are key features of the Cliffs of Moher SPA, which is designated for four bird species. All of these species are known to use the cliff edge features for roosting/nesting. The sheer cliffs are largely unvegetated, though some wide slopes support a Fescue (*Festuca*) sward. The scarce Roseroot (*Rhodiola rosea*) occurs on the cliffs. The cliff-top vegetation is a typical maritime sward, including such species as Thrift (*Armeria maritima*), Sea Campion (*Silene vulgaris subsp. maritima*), Buck's-horn Plantain (*Plantago coronopus*) and Rock Samphire (*Crithmum maritimum*). An interesting lichen flora has been recorded from the cliffs. Studies have shown that Chough forage mainly within 350 m inland of the cliff edge.

Table 3.18 Designated sites in proximity to Cliffs of Moher and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
004005	Cliffs of Moher SPA	NPWS 2018 ²⁶	The Discovery Point occurs immediately adjacent to the SPA.	<u>Annex I Bird Species:</u> Guillemot (<i>Uria aalge</i>) [A199] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346] <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]
000026	Cliffs of Moher pNHA	N/A	Discovery Point is immediately adjacent to the pNHA.	Maritime grassland Sea cliffs Sea Birds

3.7.3 Baseline Ecology of study area

A total of nine quadrats were located at the Cliffs of Moher as summarised in Table 3.19 and their locations have been mapped in Figure 3.14.

The Cliffs of Moher are situated along the edge of an agriculturally dominated landscape. The surrounding comprises mainly of Improved Agricultural Grassland (GA1) with extremely low diversity; primarily perennial ryegrass monocultures. The dominance of the agricultural practices limits the ecological value of the receiving area substantially. Within the core area of the Cliffs of Moher Signature Discovery point, there are fenced off areas which are visitor interactions and there are no management activities which occur here. The cliff edge vegetation which is free from visitor movements has similar diversity and species as the cliff edge vegetation where visitor movements are prevalent. No rare or protected flora species were recorded during the ecological surveys. Common species such as mayweed, pineapple weed, sea thrift and plantain were prevalent. The dominant grass species along the cliff edge was red fescue; however, the further from the edge the more cocksfoot and perennial ryegrass was detected. There were obvious signs of soil compaction and trampling of the vegetation from the visitor movements on site. This was particularly significant along the northern walking tail beyond the castle structure. There was clear erosion being caused.

There was also a dry calcareous and neutral grassland (GS1) patch within the core movement zone which was fenced off. This was directly adjacent to the visitor centre and was a large triangular grassland patch with high productivity as the vegetation was over 40cm in height. The diversity was still low and less than 10 species were recorded to be present within the area.

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

²⁶ NPWS (2018) Conservation objectives for Cliffs of Moher SPA [004005]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

Table 3.19 Summary details of each quadrat recorded at Cliffs of Moher

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
COM-Q1	Tertiary	GS2 Dry meadows and grassy verges	N/A	None	Good
COM-Q2	Tertiary	GS1 Dry calcareous and neutral grassland	N/A	None	Good
COM-Q3	Secondary	GA2 Amenity grassland (improved)	N/A	Recreation	Fair
COM-Q4	Core	GA2 Amenity grassland (improved)	N/A	Recreation	Fair
COM-Q5	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Bad
COM-Q6	Secondary	ED1 Exposed sand, gravel or till	N/A	Recreation	Bad
COM-Q7	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Bad
COM-Q8	Core	BL3 Buildings and artificial surfaces	N/A	Recreation	Good
COM-Q9	Core	GA2 Amenity grassland (improved)	N/A	Recreation	Good

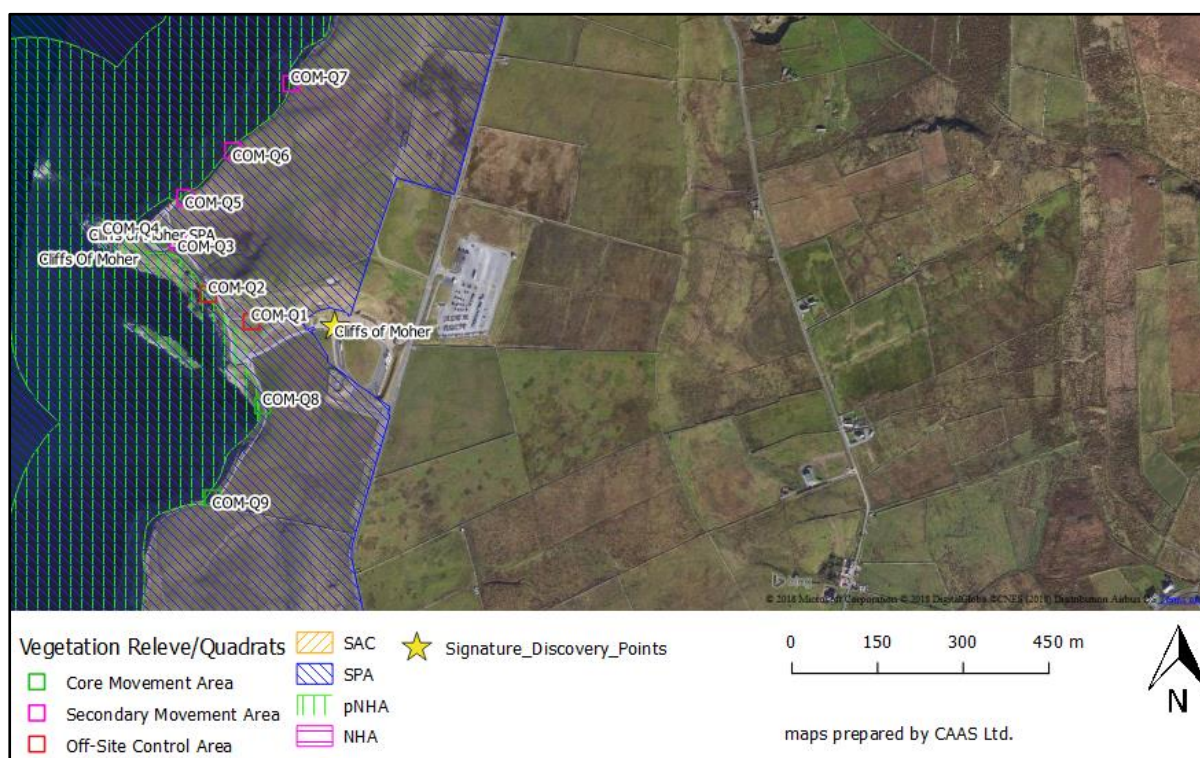


Figure 3.14 Cliffs of Moher discovery point. The location of quadrats and designated sites are indicated.

3.7.4 Preliminary Assessment of Visitor Activities²⁷

Visitor traffic at the Cliffs of Moher was recorded in the core zone (740 times) and the Tertiary Zone (Twice).

60% of visitors took part in medium level activities which resulted in the trampling of herbaceous vegetation and damage to woody vegetation. 40% of visitors took part in activities that had no identifiable environmental effect to the site.

It was noted that there was evidence of soil compaction, erosion and removal of vegetation through trampling.

²⁷ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

3.7.4.1 Cliffs of Moher SPA

Generic conservation objectives for the Cliffs of Moher SPA have been published by the NPWS. The main objective of the document is as follows:

'To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA'.

The visitor movement data showed that tourists remain within the core movement zone, and no sources for effects were identified that would affect the cliff features used by the bird species. The clifftop path network comprises of built surfaces and desire lines created from site use. The desire lines are in poor condition with significant erosion and bare soil present. However, where visitor movements are restricted the habitats present are of low ecological value. There are no rare or protected species on site, and the areas where visitor movements are restricted at the cliff edge are of similar in their diversity and composition as those with high levels of activity. Where visitor movements are restricted at locations set back from the cliff edge, the species composition and diversity of these habitats are the greatest. These give indication of the potential diversity within the agricultural systems which are currently managed as GA1 systems with extremely low diversity.

The main ecological features of interest for the SPA are the sea stacks themselves, which have no visitor access. There are also signs to restrict the flying of drones, which have the potential to disturb the birds.

3.7.4.2 Cliffs of Moher pNHA

There is no data available on the NPWS website in relation to this designation and there is no information contained in the NPWS Site Synopsis Portfolio for pNHAs for the site.

3.7.5 Recommendations

The areas which are restricted from visitor movements have low species diversity. No rare or protected species or habitats were recorded on site. Visitor movements are causing erosion of soils and the removal of vegetation along the clifftop walks. However, there are no ecological features of significance which are being impacted by visitor movements. Consideration could be given to control/manage visitor movements to reduce erosion at the site, and potentially facilitate the rehabilitation of the grassland habitats.

The management team has already restricted the use of drones on site and has erected signs in this regard. Potential sources for disturbance such as drone use should be managed and monitored carefully at the discovery point.

These recommendations are consistent with those suggested in 2015 (Table 3.20).

Table 3.20 Recommendations from the Ecological Surveys Undertaken in 2015 for the Cliffs of Moher

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.
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3.8 Killary Harbour, County Galway

3.8.1 Site Description

The Killary Harbour Signature Discovery point is a layby site along the N59 in Connemara just outside the village of Leenaun. The site provides a viewing platform that overlooks Killary fjord. The signage on site details the historic significance of the area. The site is well fenced and there is a gate to the west to access the lower areas of the site.



Plate 3.8: Killary Harbour view of from the Interpretation sign at the layby/parking facility

The site is well fenced and there is a gate to the west to access the lower areas of the site.

The road leading up to the site is well maintained and the site is well trafficked by coaches and tourists who predominantly stay within the core zone.

The bankside vegetation below the Signature Discovery point is overrun with the invasive species *Rhododendron (Rhododendron ponticum)*.

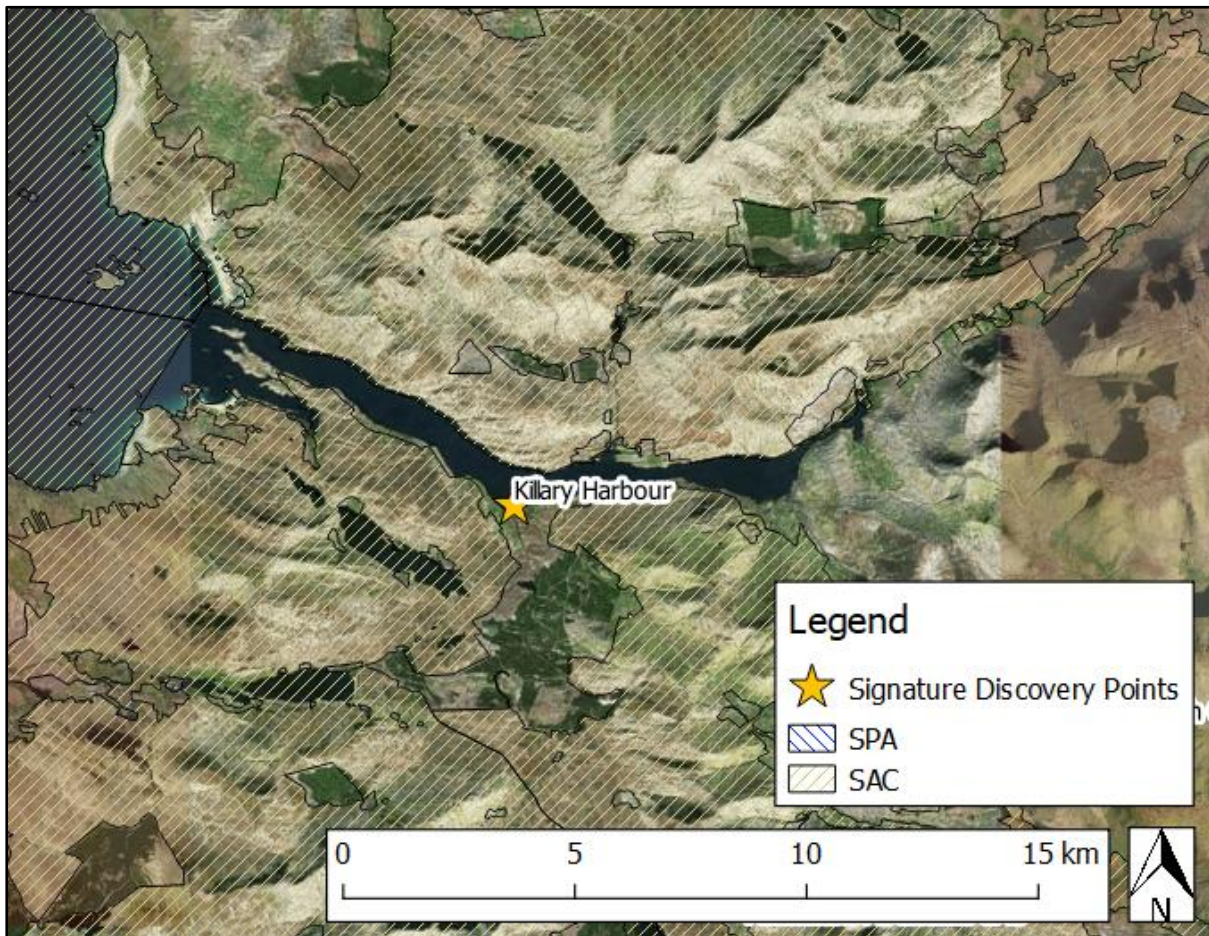


Figure 3.15 Site context map for the Killary Harbour signature discovery point.

3.8.2 Ecological Constraints

The Killary Harbour Signature Discovery point is 745m from the Mweelrea SAC which is located across the Fjord. The site is within 100m of the Maumturk Mountain SAC which is south of the site at a higher elevation. These sites are both designated for aquatic or hydrologically dependant species as well as coastal and upland habitat features. In addition, Mweelrea/Sheeffry/Erriff Complex SAC is designated for freshwater habitat features. There are no SPAs within 1km of the Discovery Point, the nearest SPA (Illaunanoon SPA) occurs ca 24km south-west.

The main damaging activities and threats to the Maumturk Mountains are overgrazing, peat cutting and afforestation. Grazing, in particular by sheep, is widespread and quite severe within the site. This has resulted in the erosion of both lowland and mountain blanket bog, and in the modification and destruction of heath communities, particularly in the southern half of the site. Peat cutting, both by hand and by machine, has become more of a problem in recent years but is largely confined to areas of deep, lowland blanket bog. The above activities are the most extensive, but other threats and potentially damaging activities include land drainage and reclamation, fertilization, quarrying and dumping. Extensive areas of hillside vegetation at the Mweelrea/Sheeffry/Erriff Complex SAC have been over-grazed by sheep in the past, and in some areas, this continues. Peat erosion occurs in places. The vast areas which were formerly covered by lowland blanket bog are now fragmented, often by coniferous forestry plantations.

Rhododendron is a non-native species subject to restrictions under Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). This species is prevalent in Connemara and is dominant throughout Killary Fjord.

Table 3.21 Designated sites in proximity to Killary Harbour and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Receptors
001932	Mweelrea/Sheeffry/Erriff Complex SAC/NHA	NPWS 2017 ²⁸	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	NPWS 2017 ²⁹	Killary Harbour Discovery Point occurs ca 120m north of the SAC/NHA.	Six upland and peatland Annex I habitats and two Annex I species.

3.8.3 Baseline Ecology of study area

A total of five quadrats were located at Killary Harbour as summarised in Table 3.22 and their locations have been mapped in Figure 3.16.

The site comprised of Buildings and artificial surfaces (BL3), with small areas of Dry calcareous and neutral grassland (GS1) along the site perimeter. The lower region of the site was a mosaic of GS1 and Scrubland (WS1). The scrub vegetation was dominated by Rhododendron however the visitor monitoring³ data showed that visitors did not persist in this area³ and no activities were recorded that would promote the spread of the species.

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

Table 3.22 Summary details of each quadrat recorded at Killary Harbour

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
DB-Q1	Core	GS2 Dry meadows and grassy verges	N/A	Recreation	Fair

²⁸ NPWS (2017) Conservation Objectives: Mweelrea/Sheeffry/Erriff Complex SAC 001932. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

²⁹ NPWS (2017) Conservation Objectives: Maumturk Mountains SAC 002008. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
DB-Q2	Core	BL3 Buildings and artificial surfaces	N/A	Recreation	Good
DB-Q3	Core	GS2 Dry meadows and grassy verges	N/A	Recreation	Good
DB-Q4	Tertiary	GS1 Dry calcareous and neutral grassland	N/A	None	Good
DB-Q5	Tertiary	PF2 Poor fen and flush	N/A	None	Good

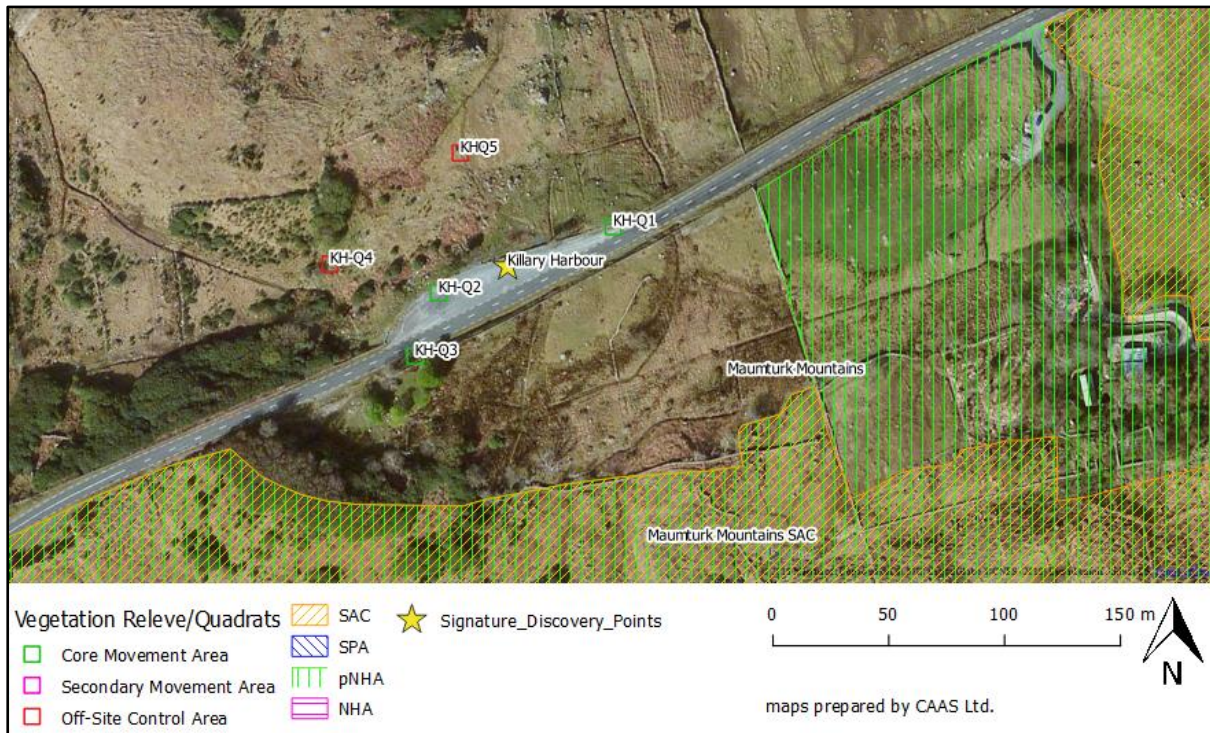


Figure 3.16 Killary Harbour discovery point. The location of quadrats and designated sites are indicated.

3.8.4 Preliminary Assessment of Visitor Activities³⁰

All the visitor movement records were within the Core zone at Killary Harbour (234 times) except for 1 record in the Tertiary zone due to water-based activities.

84% of visitors recorded no identifiable environmental effect to the site. 10% of recorded activities from visitors were Medium level from noise/disturbance, water sports and flying of drones. 2% of visitors were recorded to take part in high-level activities such as scrambling up steep areas and direct interference with on-site materials.

In addition, two groups of visitors caused sheep to become unsettled due to a high-level of noise.

3.8.4.1 Mweelrea/Sheeffry/Erriff Complex SAC/NHA

The standard data from for the SAC details a list of pressures to include; Agricultural activities including; Fertilisation, agricultural intensification, removal of peat, intensive sheep grazing. The conservation objectives for the site feature detailed maps of the distribution and land cover of each of the qualifying interests. All of the coastal habitat designations exist outside of the Killary Fjord. The freshwater habitats are all inland, north of the Fjord. There are no hydrological pathways from the Killary Harbour Signature Discovery point and the habitat features for which the SAC is designated. The species distribution maps for each of the aquatic species are identified to be upstream of the site, except for otter (*Lutra lutra*) which are present within the Fjord itself. Otter are a resilient species which are known to be tolerant to anthropogenic activity.

³⁰ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

3.8.4.2 Maumturk Mountains SAC/NHA

The standard data from for the SAC details a list of pressures to include Transportation and service corridors, recreational activities, agricultural activities, invasive species, forestry. The Maumturk Mountains are situated east of the Twelve Bens and west of the Maumtrasnas, between the Inagh Valley and the Leenaun/Maam road in Co. Galway. The site is bounded to the north by Killary Harbour and to the south by the Galway/ Clifden road. The Killary Harbour Signature Discovery point is a layby that is downhill of the SAC. The visitor monitoring data³ shows that the visitor movements remain within built structures of the layby with few tourists moving through the vegetation below the road.

3.8.5 Recommendations

Visitor activities on site have no identifiable effect on the ecological features present; which is consistent with the recommendations from 2015 (Table 3.23).

It is noted that there is a considerable presence of Rhododendron which should be controlled to maintain the existing landscape character and limit potential effects to the aesthetic of the site.

Table 3.23 Recommendations from the Ecological Surveys Undertaken in 2015 for Killary Harbour

No ecological impacts recorded.
No further ecological monitoring is required at this managed site.

3.9 Keem Strand, County Mayo

3.9.1 Site Description

Keem Strand 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 3.9: Keem Strand overlooking the strand from the carpark

Keem Strand is a perfect horseshoe bay at the head of a valley between the cliffs of Benmore to the west and Croaghnaun 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 Gaóí 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.

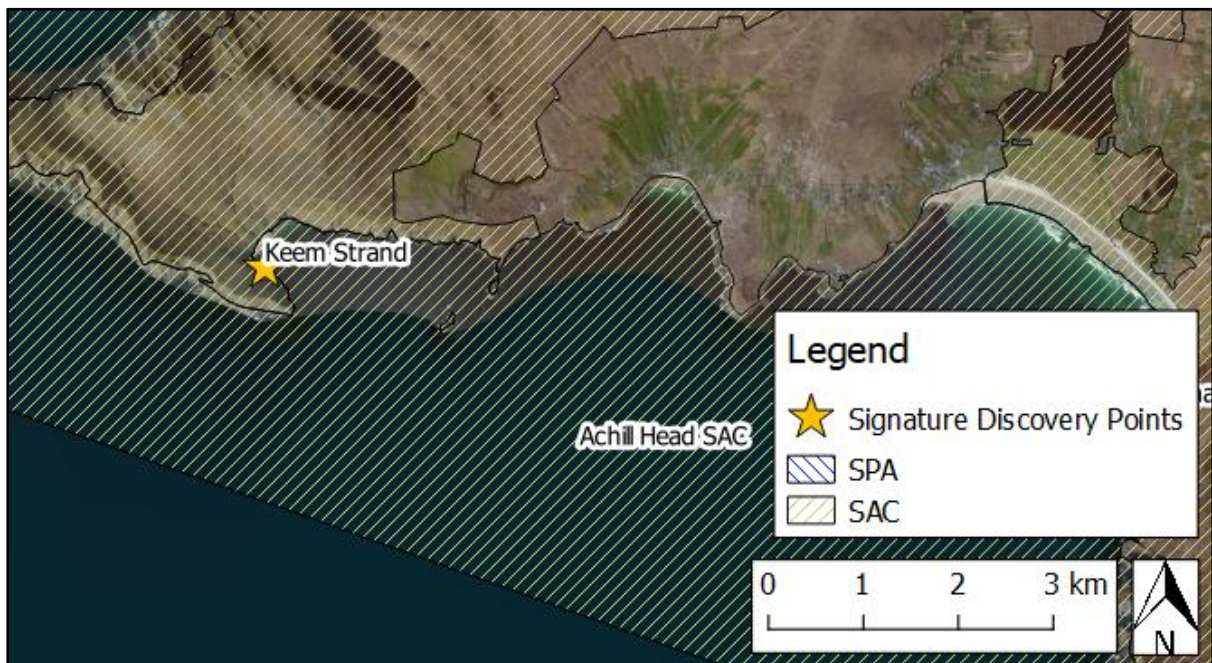


Figure 3.17 Site context map for the Keem Strand signature discovery point.

3.9.2 Ecological Constraints

The Signature Discovery Point is within the Croaghaun/Slievemore SAC and directly adjacent to the Achill Head SAC.

The Croaghaun/Slievemore SAC is designated for the following habitat features:

- [4010] Northern Atlantic wet heaths with *Erica tetralix*;
- [4030] European dry heaths;
- [4060] Alpine and Boreal heaths;
- [8110] Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*); and
- [8220] Siliceous rocky slopes with chasmophytic vegetation.

Wet and Dry heath (4010 & 4030) are known to be sensitive to afforestation, agricultural improvements, overgrazing, trampling, burning, invasive species, erosion and drainage. Alpine and Boreal heath (4060) are sensitive to unsuitable grazing and hillwalking activities along ridges causing erosion. Conversely, abandonment and removal of traditional farming techniques is also identified as a threat to this habitat. Siliceous rock habitats (8110 & 8220) are sensitive to unsuitable grazing levels, invasive species and amenity activities such as rock climbing³¹.

The Achill Head SAC is designated for the following habitat features:

- [1140] Tidal Mudflats and Sandflats;
- [1160] Large Shallow Inlets and Bays; and
- [1170] Reefs.

Pollution, fisheries/aquaculture and diverse use of the foreshore are likely to affect habitat quality (1140 & 1160). Fishing is the only pressure to reef (1170) systems specifically identified by the NPWS³¹.

Table 3.24 Designated sites in proximity to Keem Strand and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
001955	Croaghaun/Slievemore SAC / pNHA	NPWS 2018 ³²	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	NPWS 2013 ³³	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]

3.9.3 Baseline Ecology of Study Area

A total of nine quadrats were located at Keem Strand as summarised in Table 3.25 and their locations have been mapped in Figure 3.18.

The topography of the site facilitates the protection of the natural condition of the habitats. There are steep slopes between each of the carparking facilities which have notable desire lines connecting them. The visitor movement data indicates that the majority of visitor movements are restricted to the core movement zones and the existing desire lines. To the West of the site, there is a trail up to the cliff top where there is notable compaction of soil at a viewing point near a disused outlook building. Along the cliff edge there is also a marked desire line however, this shows signs of low intensity use. There was no damage recorded to the clifftop vegetation and the integrity of the habitat is not at risk from current activity levels.

³¹ NPWS (2013) The Status of Protected EU Habitats and Species in Ireland Overview Volume 1. Unpublished Report, National Parks and Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland. Editor Deirdre Lynn.

³² NPWS (2018) Conservation objectives for Croaghaun/Slievemore SAC [001955]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

³³ NPWS (2013) Conservation Objectives: Achill Head SAC 002268. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

The immediate vicinity of the Signature discovery point is a built carpark (BL3) surrounded by a mosaic of wet heath (HH3), dry calcareous and neutral grasslands (GS1) and wet grasslands (GS4). There were signs of controlled campfires on the grassland habitats directly adjacent to the carpark and evidence of soil compaction. The overall condition of the site is favourable, there were no signs of damage to vegetation outside of fire pits.

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

Table 3.25 Summary details of each quadrat recorded at Keem Strand

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
KS-Q1	Core	GS3 Dry-humid acid grassland	N/A	Grazing - sheep / Visitor use / Car park	Fair
KS-Q2	Core	GS3 Dry-humid acid grassland	N/A	Grazing - sheep / Visitor use / Car park	Doubtful
KS-Q3	Core	GS3 Dry-humid acid grassland	N/A	Grazing - sheep / Visitor use / Car park	Fair
KS-Q4	Core	GS3 Dry-humid acid grassland	N/A	Grazing - sheep / Visitor use / Car park	Good
KS-Q5	Core	LS2 Sand Shore	N/A	Grazing - sheep / Visitor use / Car park	Good
KS-Q6	Secondary	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Good
KS-Q7	Secondary	HH3 Wet heath	Wet heath [4010]	Grazing - sheep	Fair
KS-Q8	Tertiary	GS3 Dry-humid acid grassland	N/A	Grazing - sheep	Fair
KS-Q9	Tertiary	GS4 Wet grassland	N/A	Grazing - sheep	Good

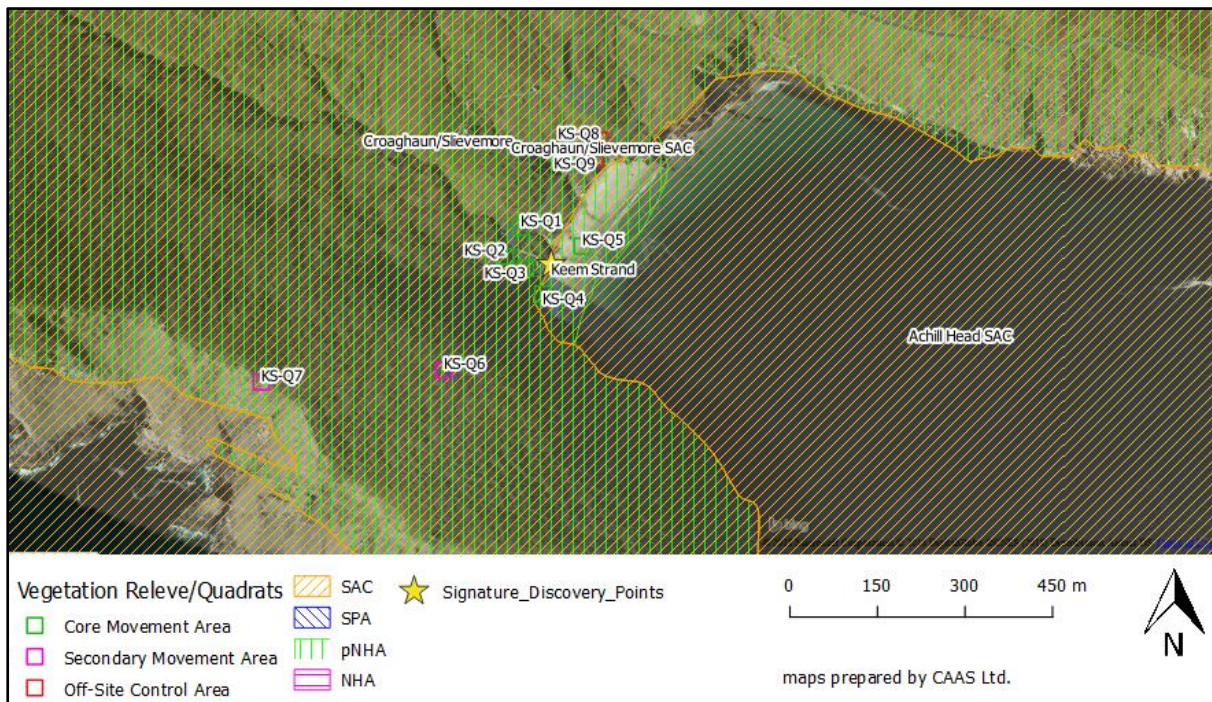


Figure 3.18 Keem Strand discovery point. The location of quadrats and designated sites are indicated.

3.9.4 Preliminary Assessment of Visitor Activities³⁴

All three zones were trafficked by visitors to Keem Strand. The core zone received most movement (154 times) while the Secondary zone was trafficked 65 times. The Tertiary zone had a high-level (74 times) of movement because of visitors using the steep maritime grassland areas/fixed dunes to access the beach.

89% of visitors to Keem Strand took part in activities that had no identifiable environmental effect to the site. 9% took part in medium level activities resulting from a group of leaving the marked path to cut through long grass leaving desire lines. 2% of the high-level activities resulted from the physical alteration of natural streams entering the sea through damming.

3.9.4.1 Croaghaun/Slievemore SAC / pNHA

The SSCOs produced by the NPWS in 2018 have one generic objective which states:

To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.

There were no activities identified that cause damaged to the ecologically sensitive features of the site. The predominant environmental effects recorded were low intensity compaction due to visitor movements and then fire pit damage in the immediate vicinity of the carpark area. There was evidence of peat exposure at the very base of the trail leading towards the clifftop walk due to a pinch point of all visitor movements going through one small area. This was very localised and the overall ecological condition of the site was favourable.

3.9.4.2 Achill Head SAC

There were no site-specific threats identified by the NPWS in any of the supporting documents for the site. The site is designated for Tidal Mudflats and Sandflats, Large Shallow Inlets and Bays and Reefs. The maps provided by the NPWS indicate the Keem Strand site to be a *Laminaria* dominated community complex and part of the Reef Community Complex. The activities recorded during the visitor observation surveys indicate disturbance effects due to anthropogenic presence to be the most prevalent effect to the site and low levels of trampling.

3.9.5 Recommendations

None of the effects observed are thought to have any long-lasting effect to the site. The site has a high density of visitors, and there is some evidence of minor elements of erosion or heavy compaction where visitors access the upper cliff walks; this is consistent with the recommendations made in 2015 (Table 3.26).

Consideration should be given to site management action such as the appointment of a seasonal warden to ensure litter at the site is controlled and/or camping or hiking activities on site are controlled.

Table 3.26 Recommendations from the Ecological Surveys Undertaken in 2015 for Keem Strand

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.

³⁴ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

3.10 Downpatrick Head, County Mayo

3.10.1 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 3.10: Sea stack at the end of Downpatrick Head

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 interpretive material 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 Doonbristly.

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.



Figure 3.19 Site context map for the Downpatrick signature discovery point.

3.10.2 Ecological Constraints

There are no known ecological constraints identified in the literature. There are no European Sites identified in the receiving environment, the closest of which is the Glenamoy Bog Complex SAC. This SAC is over 5km south-west of the Signature Discovery Point. The Downpatrick Head pNHA site synopsis identifies the sea stack as a breeding bird colony for Fulmar, Kittiwakes and Guillemots.

Table 3.27 Designated sites in proximity to Downpatrick Head and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000494	Downpatrick Head pNHA	N/A	The Discovery Point occurs within the pNHA.	<u>Habitats:</u> Vegetated Sea Cliffs Maritime grassland Wet heath <u>Birds:</u> Kittiwake (<i>Rissa tridactyla</i>) [A188] Guillemot (<i>Uria aalge</i>) [A199]

3.10.3 Baseline Ecology of Study Area

A total of twelve quadrats were located at Down Patrick Head as summarised in Table 3.28 and their locations have been mapped in Figure 3.20.

Downpatrick head is dominated by maritime grassland habitat with an abundance of fescue. There were no rare or protected species recorded on site. The species recorded were common coastal species such as sea thrift (*Armeria maritima*) and birdsfoot trefoil (*Lotus corniculatus*). During the surveys, a peregrine falcon (*Falco peregrinus*) was observed hunting along the western clifftop at the site, from the carpark up to the head of the peninsula, and across the clifftop.

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

Table 3.28 Summary details of each quadrat recorded at Downpatrick Head

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment										
DPH-Q1	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Sheep / Visitor use	Good										
DPH-Q2	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Sheep / Visitor use	Good										
DPH-Q3	Core	GA1 Improved agricultural grassland	N/A	Sheep / Visitor use	Fair										
DPH-Q4	Core	GA1 Improved agricultural grassland	N/A	Sheep / Visitor use	Doubtful										
DPH-Q5	Core	GA2 Amenity grassland (improved)	N/A	Sheep / Visitor use	Good										
DPH-Q6	Core	GA1 Improved agricultural grassland	N/A	Sheep / Visitor use	Fair										
DPH-Q7	Core	GS1 Dry calcareous and neutral grassland	N/A	Sheep / Visitor use	Fair										
DPH-Q8	Core	GS1 Dry calcareous and neutral grassland	N/A	Sheep / Visitor use	Good										
DPH-Q9	Secondary	GA2 Amenity grassland (improved)	N/A	Sheep / Visitor use	Good										
DPH-Q10	Core	GS1 Dry calcareous and neutral grassland	N/A </tr <tr> <td>DPH-Q11</td> <td>Core</td> <td>GS1 Dry calcareous and neutral grassland</td> <td>N/A</td> <td>Sheep / Visitor use</td> <td>Fair</td> </tr> <tr> <td>DPH-Q12</td> <td>Secondary</td> <td>GA2 Amenity grassland (improved)</td> <td>N/A</td> <td>Sheep / Visitor use</td> <td>Good</td> </tr>	DPH-Q11	Core	GS1 Dry calcareous and neutral grassland	N/A	Sheep / Visitor use	Fair	DPH-Q12	Secondary	GA2 Amenity grassland (improved)	N/A	Sheep / Visitor use	Good
DPH-Q11	Core	GS1 Dry calcareous and neutral grassland	N/A	Sheep / Visitor use	Fair										
DPH-Q12	Secondary	GA2 Amenity grassland (improved)	N/A	Sheep / Visitor use	Good										

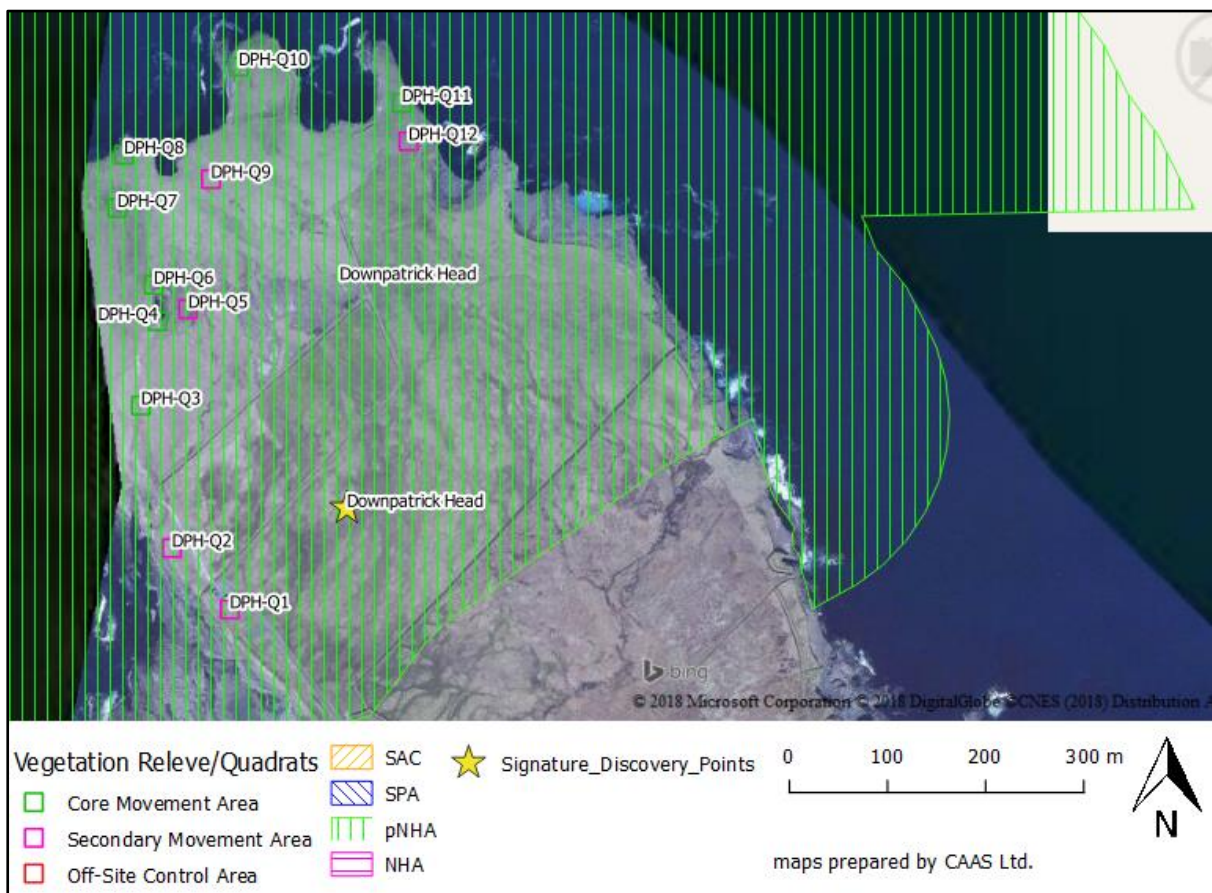


Figure 3.20 Downpatrick Head discovery point. The location of quadrats and designated sites are indicated.

3.10.4 Preliminary Assessment of Visitor Activities³⁵

18% of the visitor movements observed were recorded within the tertiary zone. More than half of all visitor movements (56%) were outside of the core movement areas.

55% of visitors were observed to take part in medium level activities.. This resulted from groups trampling herbaceous vegetation and climbing on the stone church foundations. 44% of visitors took

³⁵ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

part in activities that had no identifiable environmental effect to the site.. The remaining 1% took part in high level activities such as picking herbaceous vegetation.

The effects observed at Downpatrick head were not recorded to have any lasting environmental effects to the grass community composition of the discovery point.

3.10.4.1 Downpatrick Head pNHA

The site is identified as a key site for education and noted for use by Fulmar, Kittiwake and Guillemots. These sea birds are known to use the sea stacks as breeding locations. However, there were no activities identified that would affect the key features of the site.

3.10.5 Recommendations

The site consists of a carpark with desire line marked trails. Where visitor numbers are highest around the blowhole there is significant infrastructure for safety and to manage visitor impacts.

The grassland habitats on site are tolerant to disturbances and overall the habitat condition is favourable. However, the pressures associated with increased visitor numbers could cause damage to the site.

Consideration should be given to controlling visitor movements on site. This could be achieved with the use of a moving pathway demarcated by an ankle high rope border. This would facilitate the dispersal of impacts and facilitate the recovery of impacted areas. Any on site works must comply with the WAW Site Maintenance Guidelines.

These recommendations are consistent with those from 2015 (Table 3.29). However, the erosion of paths surrounding the blowhole has been alleviated through the installation of visitor management infrastructure in the form of interpretation material, walkways and barriers.

Table 3.29 Recommendations from the Ecological Surveys Undertaken in 2015 for Downpatrick Head

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.

3.11 Mullaghmore Head, County Sligo

3.11.1 Site Description

Mullaghmore Head is located north from the village of Mullaghmore in Co. Sligo. The area is noted for



Plate 3.11: Mullaghmore Head, view from the top of the layby

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 on 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.

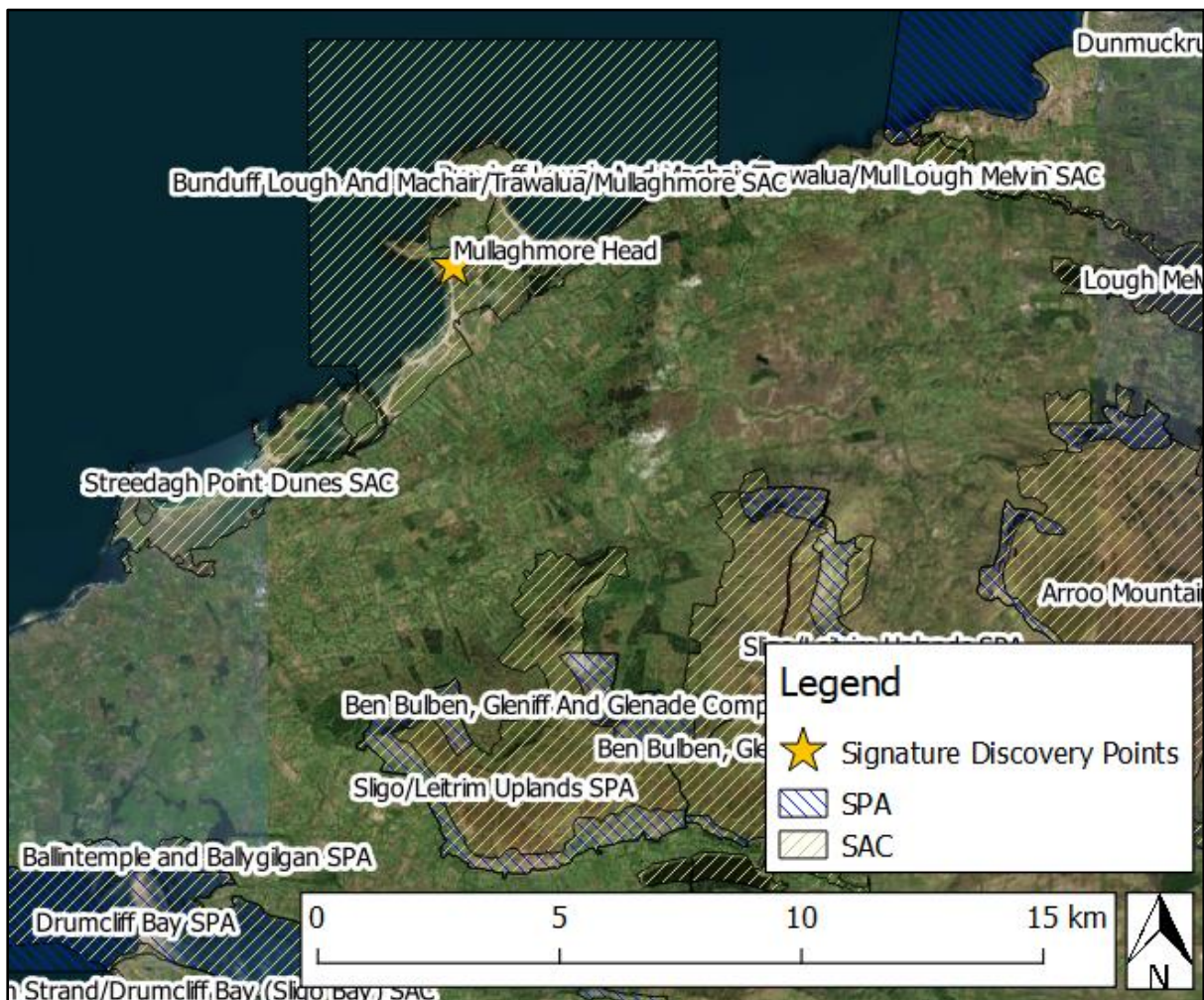


Figure 3.21 Site context map for the Mullaghmore Head signature discovery point.

3.11.2 Ecological Constraints

The Mullaghmore Signature Discovery point is within the Bunduff Lough and Machair/Trawlua Mullaghmore SAC/ pNHA. The maps provided by the NPWS identify the area around the Signature Discovery point to be part of the Intertidal Reef Community Complex. Reefs [1170] habitat are known to be sensitive to pressures such as fishing.

The Bunduff Lough and Machair/Trawlua Mullaghmore SAC is designated for Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]. The distribution of this habitat type is not indicated in the habitat maps detailed in any of the supporting documents on the NPWS database³⁶. The site synopsis the Orchid-rich calcareous grassland is found in fragmentary form in a small area to the north of Bunduff Lough, where it forms a mosaic with heath and dune grassland. This is not where the Signature Discovery point is located.

None of the other qualifying interest species are known to occur within the receiving environment of the Mullaghmore Signature Discovery point.

Table 3.30 Designated sites in proximity to Mullaghmore Head and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000625	Bunduff Lough and Machair/Trawlua Mullaghmore SAC / pNHA	NPWS 2015 ³⁷	The Discovery Point occurs within the SAC / pNHA.	<p>Annex I Habitats: Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Reefs [1170] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Humid dune slacks [2190] Machairs (* in Ireland) [21A0] Juniperus communis formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] Alkaline fens [7230]</p> <p>Annex II Species: <i>Petalophyllum ralfsii</i> (Petalwort) [1395] <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065]</p>

3.11.3 Baseline Ecology of Study Area

A total of eight quadrats were located at Mullaghmore as summarised in Table 3.31 and their locations have been mapped in Figure 3.22.

Mullaghmore is dominated by intertidal exposed rocky shores (LR1), and rocky sea cliffs (CS1) along the lower reaches of the cliffs, and the clifftop vegetation is dominated by red fescue grass (*Festuca rubera*). The clifftop vegetation also has an abundance of pollinator species such as devil's-bit scabious (*Succisa pratensis*) and there was an abundance of six-spot burnet moths (*Zygaena filipendulae*) present on the scabious plant; 9 individuals recorded. The species observed on site are not consistent with the Orchid-rich calcareous grassland for which the SAC is designated, or any of the other habitats identified above.

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

Table 3.31 Summary details of each quadrat recorded at Mullaghmore Head

³⁶ NPWS (2018) https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000625.pdf Last Accessed 29th August 2018

³⁷ NPWS (2015) Conservation Objectives: Bunduff Lough and Machair/Trawlua/Mullaghmore SAC 000625. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
MM-Q1	Core	GS2 Dry meadows and grassy verges	N/A	Amenity	Fair
MM-Q2	Core	GS1 Dry calcareous and neutral grassland	N/A	Amenity	Good
MM-Q3	Core	GS2 Dry meadows and grassy verges	N/A	Amenity	Good
MM-Q4	Secondary	HH1 Dry siliceous heath	N/A	Amenity	Doubtful
MM-Q5	Tertiary	LR1 Exposed rocky shores	N/A	Amenity	Good
MM-Q6	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Amenity	Good
MM-Q7	Secondary	HH1 Dry siliceous heath	Dry heath [4030]	Amenity	Good
MM-Q8	Secondary	HH1 Dry siliceous heath	Dry heath [4030]	Amenity	Good

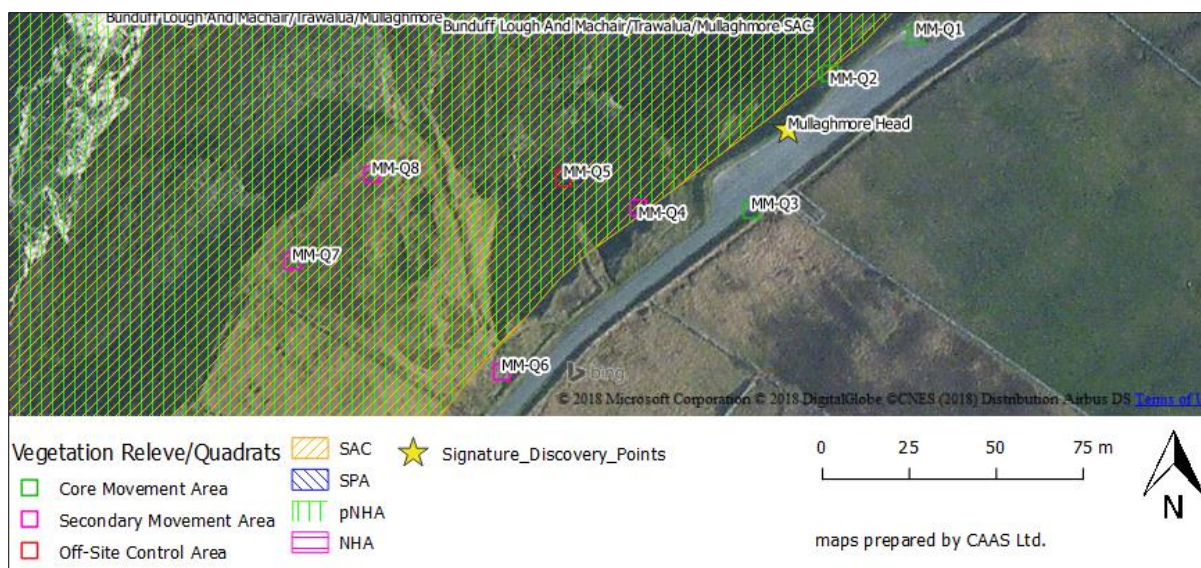


Figure 3.22 Mullaghmore Head discovery point. The location of quadrats and designated sites are indicated.

3.11.4 Preliminary Assessment of Visitor Activities³⁸

The visitor movement data showed that roughly 50% of all visitor movement at Mullaghmore Head is within the Core zone (trafficked 176 times). 42.5% of the visitor movement data was recorded along the headland (Secondary Zone) this occurred 156 times. The Tertiary zone was trafficked by visitors 29 times during the survey.

85% of visitors to Mullaghmore head were recorded to engage in low level activities that resulted in no identifiable environmental effects. Medium level activities were observed on site (14%) from two cars driving onto long grass resulting in desire lines. 1% of visitors were observed to take part in high-level activities³⁹. observed during the study at Mullaghmore Head are having an environmental effect to the vegetation present on site.

3.11.4.1 Bunduff Lough and Machair/Trawlua Mullaghmore SAC / pNHA

None of the habitat features for which the site is designated were recorded to be present on site. The Petalwort moss (*Petalophyllum ralfsii*) is a species that requires damp calcareous dune slack/machair conditions to thrive, which were not identified on site. The visitor monitoring data³ shows that the majority (84%) of visitor movements were recorded within the core area above the coastal edge. 16% of visitors observed to move within the tertiary zone; however, these visitors had no identifiable effects.

³⁸ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

³⁹ Fishing activities

The conservation objectives of the SAC identify 'Intertidal Reef Community Complex' being present at the Signature Discovery point. The attributes of the conservation objectives relating to this community complex relate to habitat area, distribution and community structure. The visitor monitoring data³ identified that visitor activities are having effects to the vegetation present at the discovery point.

3.11.5 Recommendations

Visitor movements across the clifftop create localised areas of compaction and impact to herbaceous vegetation. However, these paths are so clear that visitor movements have a high degree of trail fidelity. In addition, there were movements along the rocks at the base of the cliffs.

Consider controlling visitor movements through education. Information signage could be erected to identify the importance of the habitat features and species present to inform the visitors of the sensitives present within the system. Species such as the Devils-Bit scabious (*Succisa pratensis*) and the 6-spot burnet moth (*Zygaena filipendulae*) could be highlighted.

These recommendations are consistent with those suggested in 2015 (Table 3.32).

Table 3.32 Recommendations from the Ecological Surveys Undertaken in 2015 for Mullaghmore Head

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.
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Future ecological monitoring is recommended.
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3.12 Sliabh Liag, County Donegal

3.12.1 Site Description

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.



Plate 3.12: Sliabh Liag picnic bench area adjacent to the walkway and carpark

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.

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

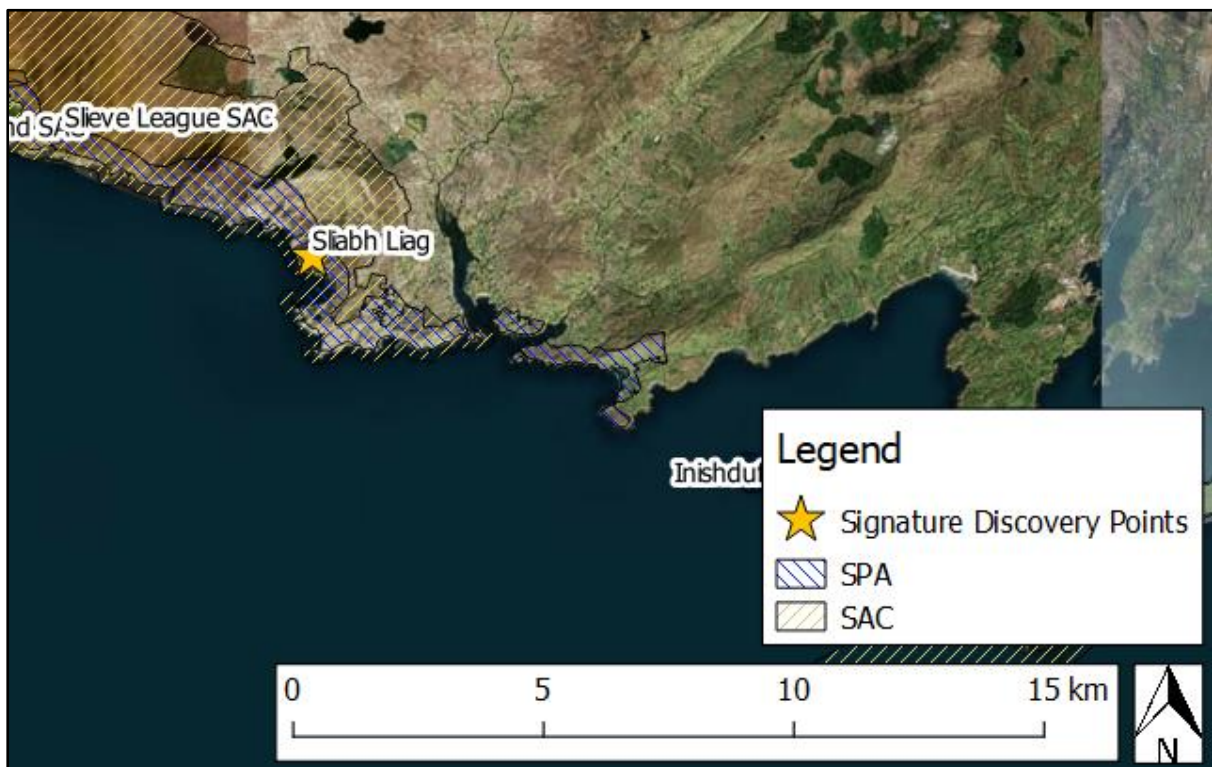


Figure 3.23 Site context map for the Sliabh Liag signature discovery point.

3.12.2 Ecological Constraints

The Sliabh Liag Signature Discovery point is within the Slieve League SAC/ pNHA and the West Donegal Coast SPA.

The Slieve League SAC/pNHA is designated for terrestrial and marine habitats; of which the terrestrial habitats are of greatest concern in relation to potential effects due to tourism combined with the topography of the site. The terrestrial habitats are montane peat systems such as wet heath, blanket bogs etc. All of these systems are particularly sensitive to land use management regimes, hydrological interactions and burning.

The West Donegal Coast SPA detail the available montane habitats to be key foraging and/or hunting areas for its designated species. Similarly, the SSCOs and site synopsis document highlight the importance of the cliff faces and sea stacks are breeding locations for all of the species. There are no site-specific threats identified by the NPWS.

Table 3.33 Designated sites in proximity to Sliabh Liag and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
000189	Slieve League SAC / pNHA	NPWS 2015 ⁴⁰	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 <i>Erica tetralix</i> [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Blanket bogs (* if active bog) [7130] Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110] Calcareous rocky slopes with chasmophytic vegetation [8210] Siliceous rocky slopes with chasmophytic vegetation [8220]
004150	West Donegal Coast SPA	NPWS 2018 ⁴¹	Discovery Point occurs within the SPA	<u>Annex I Bird Species</u> Peregrine (<i>Falco peregrinus</i>) [A103] Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346] <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]

3.12.3 Baseline Ecology of Study Area

A total of seven quadrats were located at Sliabh Liag as summarised in Table 3.34 and their locations have been mapped in Figure 3.24.

Sliabh Liag is a well-managed site with ample parking facilities and robust infrastructure. The site is dominated by Wet Heath (HH3 [4030]) and Dry Calcareous and Neutral Grasslands (GS1). Grazing by sheep is a known stressor of Wet Heath (HH3 [4030]) systems⁴² which is present on site. The dominance

⁴⁰ NPWS (2015) Conservation Objectives: Slieve League SAC 000189. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

⁴¹ NPWS (2018) Conservation objectives for West Donegal Coast SPA [004150]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

⁴² Hulme, P.D., Merrell, B.G., Torvell, L., Fisher, J.M., Small, J.L. and Pakeman, R.J., 2002. Rehabilitation of degraded *Calluna vulgaris* (L.) Hull-dominated wet heath by controlled sheep grazing. *Biological Conservation*, 107(3), pp.351-363.

of the cross-leaved heath (*Erica tetralix*) and low levels of grazing pressure have not resulted in significant habitat loss and that overall habitat condition was favourable. However, grazing management should be controlled to ensure this does not become an issue in the future. There is evidence of low intensity desire lines being worn through the wet heath in the immediate vicinity of the Carpark area on top of the raised ground area. These desire lines have 100% vegetation cover the margins of these desire lines have increased diversity due to the removal of shrub cover thus providing an additional niche within the system. The extent of the desire lines is small in scale and were determined not to affect the overall functioning of the system. Similarly, the margins of the existing built trails show signs of minimal vegetation removal. This is thought to be due to large visitor numbers using the paths, this path widening through visitor movements is a cosmetic issue and does not introduce significant damage to the habitats present on site.

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

Table 3.34 Summary details of each quadrat recorded at Sliabh Liag

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Quality	Habitat	Landuse ⁶	Quadrat Condition Assessment
SL-Q1	Core	BL3 Building and artificial surfaces	N/A		Sheep / Visitor use	Fair
SL-Q2	Core	GS3 Dry-humid acid grassland	N/A		Sheep / Visitor use	Good
SL-Q3	Secondary	HH1 Dry siliceous heath	Dry heath [4030]		Sheep / Visitor use	Fair
SL-Q4	Tertiary	HH1 Dry siliceous heath	Dry heath [4030]		Sheep / Visitor use	Good
SL-Q5	Secondary	HH3 Wet heath	Wet heath [4010]		Sheep / Visitor use	Good
SL-Q6	Core	HH3 Wet heath	Wet heath [4010]		Sheep / Visitor use	Poor
SL-Q7	Core	GS3 Dry-humid acid grassland	N/A		Sheep / Visitor use	Good
SL-Q8	Secondary	GS1 Dry calcareous and neutral grassland	N/A		Sheep / Visitor use	Fair
SL-Q9	Secondary	GS1 Dry calcareous and neutral grassland	N/A		Sheep / Visitor use	Good



Figure 3.24 Sliebh Liag discovery point. The location of quadrats and designated sites are indicated.

3.12.4 Preliminary Assessment of Visitor Activities⁴³

Less than 5% of the visitor movements observed were recorded outside of the Core movement zone. Visitors moved within the Core Zone 268 times with the Secondary zones being trafficked only 9 times. Most of the time was spent in the core zone due to the steep incline in the Secondary area along with difficult terrain.

95% of visitors to the site engaged in activities that resulted in Low or no environmental effects.. 5% were recorded to take part in medium level activities such as trampling of vegetation and climbing on steep slopes. There were 2 records of high-level activities resulting from 2 visitors jumping a fence and trampling vegetation.

Overall the activities observed during the study had low levels of localised environmental effects for the flora at the discovery point.

3.12.4.1 Slieve League SAC / pNHA

The Slieve League SAC is designated for both marine and terrestrial habitats. The maps provided by the NPWS in the SSCOs identify Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], Northern Atlantic wet heaths with *Erica tetralix* [4010] and Blanket bogs (* if active bog) [7130] are the only designated habitats present at the site. However, there are no conservation objectives for the European Dry Heath [4030] habitat or any details in relation to its potential distribution, composition and/or threats.

There is Siliceous rocky slopes with chasmophytic vegetation [8220] identified within close proximity to the site; however, the visitor movement data showed visitors use the core movement areas when going

⁴³ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

up the gradient and there are no desire lines or evidence present indicating any activities in the direction of this habitat type.

The sea cliff habitat type is characterised by chasmophytic species such as rose root (*Rhodiola rosea*), sea spleenwort (*Asplenium marinum*), etc. These species are typically found at the extreme cliff edge or on the cliff face itself. The existing infrastructure and topography restrict access to these areas. The visitor monitoring data³ shows visitor movements (over 99%) are controlled within the core movement area.

The habitat surveys did not identify any active blanket bog habitats [7130] and the site is dominated by wet heath (HH3 [4010]). There is evidence of desire lines being present across the wet heath (HH3 [4010]) in the immediate vicinity of the discovery point however these trails have 100% vegetation cover, and provide a disturbance niche for species other than heather and bracken which are dominant.

3.12.4.2 West Donegal Coast SPA

The chough (*Pyrhacorax pyrrhacorax*) was recorded on site during the survey, it was observed foraging along the clifftop vegetation to the south of the carpark. The habitat present on site has potential to support peregrine falcon (*Falco peregrinus*) and the cliff face provides potential roost features for all of the special conservation interest species.

The visitor movement data³ showed that visitors have low levels of impacts, and there was no damage recorded to the habitats present on site. The margins of the built path were worn; however, this marginal wear is not significant and does not threaten the integrity of the site. The existing infrastructure is sufficient to ensure that visitor movements are controlled; less than 1% of all visitor movements monitored were outside of the core movement areas. There is evidence of desire lines being present across the heath in the immediate vicinity of the discovery point however these trails have 100% vegetation cover, and provide a disturbance niche for species other than heather and bracken which are dominant.

3.12.5 Recommendations

The site is well managed and the impacts observed were predominantly directly adjacent to the existing built walkways. Consideration should be given to the widening of the existing walkways to facilitate large groups. Overall the site management is robust and the habitat condition is favourable despite the presence of a few desire lines through the heath. This is consistent with the 2015 recommendations and shows an increase in the overall habitat condition present on site.

Table 3.35 Recommendations from the Ecological Surveys Undertaken in 2015 for Sliabh Liag

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.

3.13 Cionn Fhánada (Fanad Head), County Donegal

3.13.1 Site Description

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. In addition to the small carpark in the immediate vicinity of the discovery point, there is an additional carpark to the north west of the site with an adjoining visitor centre that has opened since 2015.



Plate 3.13: Cionn Fhánada (Fanad Head)

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.

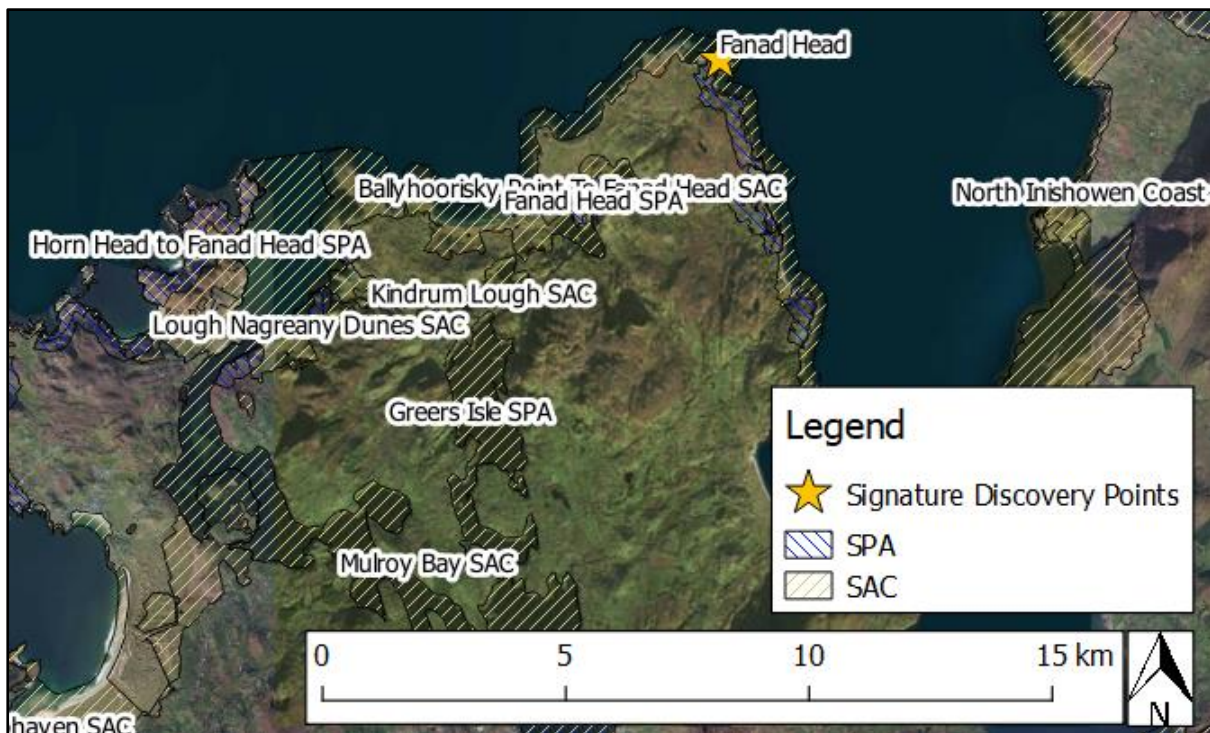


Figure 3.25 Site context map for the Fanad Head signature discovery point.

3.13.2 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 3.36 and Figure 3.26).

The Ballyhorrisky Point to Fanad Head SAC is grazed by both sheep and cattle and this, coupled with fencing off of certain areas and heavy use of fertilizers, has caused damage to some parts of the site. 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. There are no hydrological pathways to the other habitats which are hydrologically sensitive. 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 forage amongst the grassland and cliff-top habitats in the area and would be sensitive to disturbance in the breeding season.

Table 3.36 Designated sites in proximity to Cionn Fhánada (Fanad Head) and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (August 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
001975	Ballyhorrisky Point to Fanad Head SAC / pNHA	NPWS 2017 ⁴⁴	Discovery Point occurs within the SAC / pNHA	<u>Annex I Habitats</u> Perennial vegetation of stony banks [1220] Vegetated sea cliffs [1230] Oligotrophic lakes [3110] Hard oligo-mesotrophic waters [3140] <u>Annex II Species</u> <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014] <i>Najas flexilis</i> (Slender Naiad) [1833]
004194	Horn Head to Fanad Head SPA	NPWS 2018 ⁴⁵	Discovery Point occurs within the SPA	Barnacle Goose (<i>Branta leucopsis</i>) [A045] Chough (<i>Pyrhcorax pyrrhcorax</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]

3.13.3 Baseline Ecology of study area

A total of eight quadrats were located at Fanad Head as summarised in Table 3.37 and their locations have been mapped in Figure 3.26.

The habitats present on site are dominated by fescue grasses, other species present included sea pink, common birdsfoot trefoil and mayweed (GS1). The area around the abandoned structure adjacent to the site had a large coverage of vegetation with the average sward height being greater than 50cm. The species present within this area were agricultural grassland (GA1) species such as cocksfoot, spear thistle, silverweed and broad-leafed dock. There were areas of exposed rock throughout the site, and there was high coverage of Lichen species which is an indicator of clean air. There were no signs of damage to any of the vegetation present on site, and the desire lines observed were mild in nature.

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

Table 3.37 Summary details of each quadrat recorded at Cé Mhachaire Uí Rabhartaigh

⁴⁴ NPWS (2017) Conservation Objectives: Ballyhorrisky Point to Fanad Head SAC 001975. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

⁴⁵ NPWS (2018) Conservation objectives for Horn Head to Fanad Head SPA [004194]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
FH-Q1	Core	GS2 Dry meadows and grassy verges	N/A	Recreation	Good
FH-Q2	Core	GS2 Dry meadows and grassy verges	N/A	Recreation	Good
FH-Q3	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Good
FH-Q4	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Fair
FH-Q5	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Good
FH-Q6	Secondary	GS4 Wet grassland	N/A	None	Good
FH-Q7	Secondary	ER Exposed rock	N/A	Recreation	Good
FH-Q8	Tertiary	GS1 Dry calcareous and neutral grassland	N/A	Grazing	Fair



Figure 3.26 Cionn Fhánada (Fanad Head) discovery point. The location of quadrats and designated sites are indicated.

3.13.4 Preliminary Assessment of Visitor Impact⁴⁶

Visitors to Fanad Head were recorded in the Core zone 194 times; 12% of visitor movements observed were in the Secondary zone (trafficked 28 times) when visitors left the core zone to walk along the headland.

59% of visitors took part in activities that resulted in no identifiable environmental effects to the site. A further 20% took part in low level activities.had low levels of effects observed. Evidence of the trampling of herbaceous vegetation was apparent across fences where visitors trafficked secondary zones (19% of all effects observed; 12 incidences). The remaining 2% were due to noise pollution and physical interactions with fencing. This is readily reversible and will not have any lasting localised environmental effect to the site..

⁴⁶ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

3.13.4.1 Ballyhorrisky Point to Fanad Head SAC/ pNHA

The habitats present on site are not consistent with the designated features of the SAC. There is no habitat available on site for the Slender Newt (*Najas flexilis*) or the Narrow-mouthed Whorl Snail (*Vertigo angustior*). Vegetated sea-cliffs are well represented within the SAC and are best developed to the south of Fanad Head where they reach a maximum height of 30 m. Species such as Thrift (*Armeria maritima*), Sea Campion (*Silene vulgaris* subsp. *maritima*), Common Scurvygrass (*Cochlearia officinalis*) and the scarce Roseroot (*Rhodiola rosea*) occur.

The visitor monitoring data³ showed that no visitor movements were observed south of the discovery point outside of specifically managed areas. The predominant movement zones were north of the abandoned structure out towards the headland/viewing area. The topography of the site ensures that there is no access to the cliff face itself.

3.13.4.2 Horn Head to Fanad Head SPA

There is no evidence of trampling or compaction across the habitats present on site. There were moderate desire lines recorded within the grasslands identified on site, however no damage to the integrity of the site was recorded. The SSCOs published by the NPWS for the site are generic version 6.0 which state the following objective:

'To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA'

No damage to the habitats on site were identified by the ecological surveys.

3.13.5 Recommendations

The lighthouse is privately owned and is now open to tourists. Visitor activities on site had limited impact on the ecological features present. Consideration should be given to control/ manage visitor movements on site if visitor numbers increase. This recommendation is consistent with those suggested in 2015 (Table 3.38).

Table 3.38 Recommendations from the Ecological Surveys Undertaken in 2015 for Fanad Head

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.

3.14 Malin Head, County Donegal

3.14.1 Site Description

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 series of paths including a cliff top walk. Three



Plate 3.14: Malin Head, view from the roadside leading up to the carpark

World War II huts and a viewing platform (constructed in late 2014) are adjacent to the upper car park.

During surveys in both 2015 and 2018 there were inadequate parking facilities and a number of cars were observed to park on muddy verges and in off-road areas of wet soil/heath. Since 2015 a new toilet facility had been installed. The signage approaching the Signature Discovery Point

encourages a one-way system around the headland to manage site visitor traffic.

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.

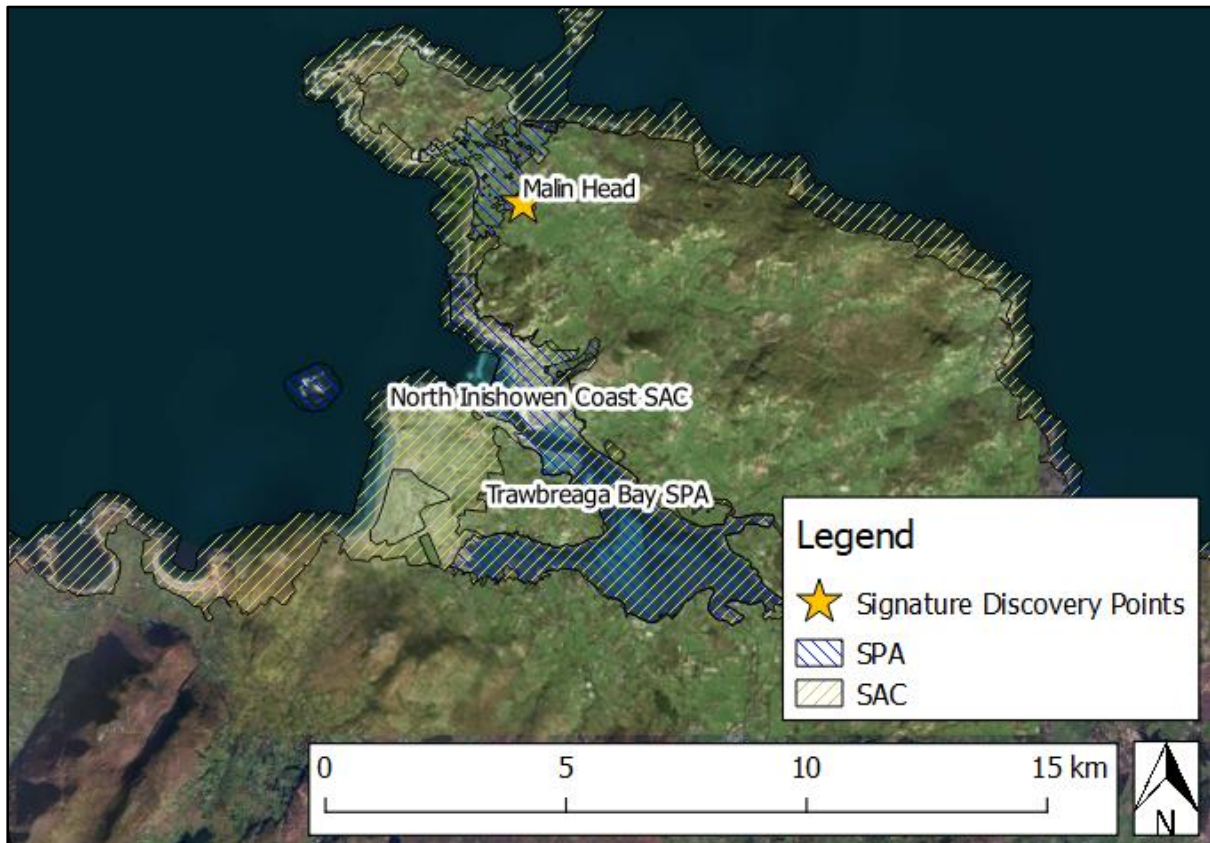


Figure 3.27 Site context map for the Malin Head signature discovery point.

3.14.2 Ecological Constraints

The Malin Head Signature Discovery point is within the North Inishowen Coast SAC/pNHA.

This northern site is of high conservation value because of the extensive area of relatively unspoilt coastal and heath habitats and the range of plant and animal species that these habitats support.

Table 3.39 Designated sites in proximity to Malin Head and relevant sensitive ecological receptor

NPWS Site Code	Site name	Conservation Objectives (Aug 2018)	Relationship with discovery point	Qualifying Interests / Sensitive Ecological Receptors
002012	North Inishowen Coast SAC / pNHA	NPWS 2014 ⁴⁷	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]</p> <p><u>The site is also of importance for following Annex I bird species:</u> Barnacle Goose (<i>Branta leucopsis</i>) Chough (<i>Pyrrhocorax pyrrhocorax</i>) Peregrine Falcon (<i>Falco peregrinus</i>)</p>

3.14.3 Baseline Ecology of study area

A total of eleven quadrats were located at Malin Head as summarised in Table 3.40 and their locations have been mapped in Figure 3.28.

Malin head is an exposed headland with carparking and toilet facilities. The landscape was a mosaic of maritime upland habitats and the dominant habitats present on site were Dry Siliceous Heath (HH1), Wet Heath (HH3), Dry Calcareous and Neutral Grassland (GS1) and Dry-Humid Acid Grassland (GS3). There were high incidences of exposed peat/soil and there were clear signs of erosion present due to compaction. The compaction was identified primarily in the immediate vicinity of the carparking facilities and was most abundant directly adjacent to the roadside edge. Overall the broader habitat condition was favourable; however, there were high incidences of damage in the immediate vicinity of the Signature Discovery point.

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

Table 3.40: Summary details of each quadrat recorded at Malin Head

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Habitat Quality	Landuse ⁶	Quadrat Condition Assessment
MH-Q1	Core	HH3 Wet heath	Wet heath [4010]	Recreation	Bad
MH-Q2	Core	HH3 Wet heath	Wet heath [4010]	Recreation	Bad
MH-Q3	Core	GA2 Amenity Grassland	N/A	Recreation	Fair
MH-Q4	Secondary	HH1 Dry siliceous heath	Dry heath [4030]	Recreation	Doubtful
MH-Q5	Core	GS4 Wet Grassland	N/A	Recreation	Bad
MH-Q6	Core	GS3 Dry-Humid Acid Grassland	N/A	Recreation	Doubtful
MH-Q7	Secondary	ER Exposed Rock	N/A	Recreation	Fair
MH-Q8	Secondary	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Doubtful
MH-Q9	Core	GS1 Dry calcareous and neutral grassland	N/A	Recreation	Good
MH-Q10	Tertiary	HH1 Dry siliceous heath	Dry heath [4030]	Recreation	Good

⁴⁷ NPWS (2014) Conservation Objectives: North Inishowen Coast SAC 002012. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Quadrat Code	Quadrat Type	Quadrat Habitat Type	EU Quality	Habitat	Landuse ⁶	Quadrat Condition Assessment
MH-Q11	Tertiary	HH1 Dry siliceous heath	Dry heath [4030]		None	Good

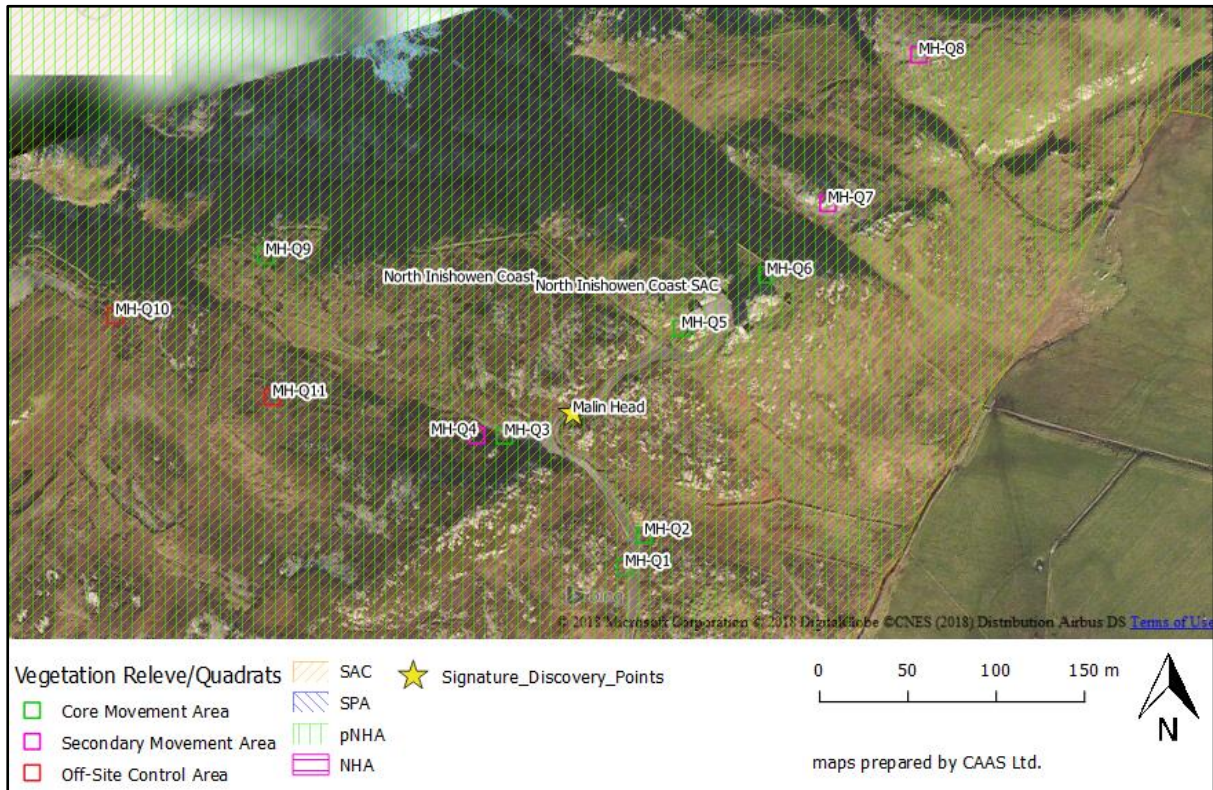


Figure 3.28 Malin Head discovery point. The location of quadrats and designated sites are indicated.

3.14.4 Preliminary Assessment of Visitor Activity⁴⁸

35% of visitor movements observed were outside of the core area. Visitor Movement in the Core zone at Malin Head was recorded 219 times. The Secondary zone was trafficked 118 times from visitors moving across bare rock and vegetation to observe the lookout post or signal tower.

71% of visitors had no identifiable environmental effect to the site and conversely, 29% of visitors were recorded to have some level of effect on the site. 5% of all the observed were because of damage to vegetation due to trampling which was observed 12 times. Visitors that left marked trails to explore the different focal points, marked trails became evident. Two individuals were observed to climb across a mound resulting in visible desire lines.

Further assessment into the implication of the environmental effects observed to the vegetation need to be explored in the Ecological Monitoring Report.

There is clear evidence in the vegetation that the carparking facilities are not fit for capacity. There is extensive damage to the roadside vegetation and erosion of peat/soil present throughout. There are manmade walkways leading from the carpark to the cliff walks however the visitor observation surveys showed that in the vicinity of the carpark visitor movements are dispersed in the secondary movement zones. There are multiple desire lines, evidence of damage through trampling and compaction of peat/soil and erosion due to visitor movements. In the wider area however, the clifftop walkway is used and visitor movements shows little signs of impact or damage. The wider site has favourable habitat condition.

⁴⁸ This classification system is specific to the visitor monitoring programme and any reference to effects or impacts within this report does not relate to similar terms within the Habitats Directive but to general activities and associated environmental effects as detailed in Appendix III of the Visitor monitoring report.

3.14.4.1 North Inishowen Coast SAC / pNHA

The standard data from for the site details a list of pressures to include; removal of beach materials, Interpretative centres, recreational activities, abandonment of pastoral systems, lack of grazing and fishing harbours. (North Inishowen Coast SAC). The SAC is designated the following Qualifying Interests:

- Mudflats and sandflats not covered by seawater at low tide [1140]
- Perennial vegetation of stony banks [1220]
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- Machairs (* in Ireland) [21A0]
- European dry heaths [4030]
- *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014]
- *Lutra lutra* (Otter) [1355]

None of the coastal habitats are known to occur at the Signature Discovery point and the topography of the site naturally protects the vegetated sea cliff habitats from visitor interaction. Similarly, the vertigo snail does not occur at the site and otter use the coastline at the cliff base. The European Dry Heath habitat is identified as representing 10% of the overall SAC area and exists as a mosaic across the designated area. This habitat was identified on site, and there was damage recorded to the habitat type due to visitor movements.

3.14.5 Recommendations

There is clear evidence of damage occurring to the habitat features of the site as a direct result of visitor movements. Visitor movements are dispersed across the site and are currently not managed or controlled. There are clear evidences the existing car parking facilities are under capacity for the volumes of visitors the site receives daily. An overall assessment of the site management practices is required to assess the steps and measures needed to reduce the harmful activities which currently are evident on site. All works to the site must comply with the WAW Site Maintenance Guidelines. Similarly, all works must be undertaken in compliance with the EU Habitats Directive (Council Directive 92/43/EEC) and all other relevant environmental legislation.

This site should be monitored closely and action should be taken if the current condition is not improved.

These recommendations are consistent with those made in 2015. Since 2015 there have been improvements made to the site facilities with an extension to the carpark facilities and provision of toilet facilities. However, additional measures are still required as the effects are still present.

Table 3.41 Recommendations from the Ecological Surveys Undertaken in 2015 for Malin Head

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.

Section 4 Discussion and Recommendations

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

All recommendations made as a result of the Visitor Monitoring data and subsequent ecological assessments are to be considered with respect to all of the Policies and Objectives of the WAW Operational Programme. Similarly, all works must be undertaken in compliance with the EU Habitats Directive (Council Directive 92/43/EEC) and all other relevant environmental legislation. All suggested remedial actions or recommendations must comply with the Policies and Objectives of the WAW Operational Programme; most notably Appendix V: Site Maintenance Guidelines. These guidelines provide robust measures to ensure any works that take place on site are designed and undertaken in an environmentally sensitive manner to ensure the protection of the ecological integrity of the site.

Of the fifteen sites surveyed, 14 of the sites occur within or directly adjacent to sites designated for nature conservation; Downpatrick Head did not have any overlapping or adjacent designations. All of the sites surveyed are coastal sites. The features of ecological importance are remarkably consistent throughout most sites comprising coastal habitats (principally sea cliffs, dry heath, and maritime grassland such as dry calcareous and neutral grasslands). Most of the discovery points are located within or nearby SPA sites designated for the protection of coastal sea birds, waterfowl, and waders.

No discernible effects were identified at seven of the sites:

- Mizen Head;
- Dursey Sound;
- Basket View;
- Bray Head;
- Killary Harbour;
- Mullaghmore; and
- Cionn Fhánada (Fanad Head)

These sites were seen to have robust management practices in place which safe guard the ecological processes of the receiving environment; recommendations for these sites were advisory and minor/small in scale. Visitor management at these nine sites ensures that sensitive habitats in the surroundings are safeguarded from potential impacts. In addition, it is considered that visitor activities at these sites do not result in any significant adverse ecological impacts, due in part to the pattern of use by visitors, short duration of stay, or currently low visitor numbers.

Minimal and localised visitor impacts were observed at a further five sites surveyed in 2018. These included:

- Old Head of Kinsale;
- Loop Head;
- Cliffs of Moher;
- Keem Strand;
- Down Patrick Head; and
- Sliabh Liag.

Recommendations have been made to further prevent impacts to ecological processes at these sites. It is noted that the impacts identified at these sites were recorded to be low and the recommendations made are minor suggestions to further minimise any potential effects. Further monitoring will facilitate an assessment of long-term pressures from annual visitor numbers to ensure they will not present future problems for the site.

Those sites which showed more significant visitor impacts, often as a result of visitor use of fragile heath areas for recreational activities such as walking, off road driving, and dog walking included:

- Malin Head.

At this site, 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/peat surfaces and thereby making the areas vulnerable to further erosion. The impacts are localised in nature and confined to the area being directly traversed. The impacted habitats are part of an upland mosaic cliff-top maritime grassland and / or heathland areas.

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 improve visitor management. This can include (but not restricted to) such measures as:

- Drone usage at the sites should be restricted or managed appropriately
- Improved signage directing visitors away from sensitive areas, particularly in relation to sensitive habitat features and flora;
- Review or improve interpretation facilities informing visitors of the sensitivity of the area and appropriate behaviour / activities;
- Review of existing management facilities and access routes. Consideration should be given to controlling visitor movements on site. This could be achieved with the use of a moving pathway demarcated by an ankle high rope border. This would facilitate the dispersal of impacts and facilitate the recovery of impacted areas. Any on site works must comply with the WAW Site Maintenance Guidelines. Similarly, all works must be undertaken in compliance with the EU Habitats Directive (Council Directive 92/43/EEC) and all other relevant environmental legislation.;
- Restrict access where harm to the environment is unavoidable, this is particularly important for vehicle access in relation to some sites;
- Explore the potential for a part time warden at peak times to manage human conflicts with the receiving environment of discovery points; and
- An overall assessment of the site management practices is required to assess the steps and measures needed to reduce the harmful activities which currently are evident on site. All works to the site must comply with the WAW Site Maintenance Guidelines. Similarly, all works must be undertaken in compliance with the EU Habitats Directive (Council Directive 92/43/EEC) and all other relevant environmental legislation.

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. These recommendations take account of habitat features as well as flora and bird species and their sensitivities.

Table 4.1: Summary results of ecological monitoring at WAW signature discovery points undertaken in 2018

Discovery Point	Designated sites	Sensitive features with potential to be affected by visitors	Ecological impacts identified ⁴⁹	Recommendation(s)
Old Head of Kinsale	Three Castle Head to Mizén Head SAC/pNHA Sheep's Head to Toe Head SPA	N/A	Localised Trampling of clifftop vegetation	<p>Visitor movements are concentrated at key vantage points along the informal marked trails resulting in the removal of vegetation and exposed soil areas. Further damage should be avoided by controlling/ managing visitor access to the damaged areas.</p> <p>Any site maintenance works or improvements to facilitate the recovery of the clifftop vegetation should be carried out in compliance with Appendix V of the WAW Operational Programme (Site Maintenance Guidelines).</p> <p>These recommendations are consistent with the recommendations made in 2015 (Table 3.3) and show that the same issues exist at the site. Therefore, the upgrades to the site facilities have not reduced the impacts/effects observed on site.</p>
Mizén Head	Three Castle Head to Mizén Head SAC/pNHA Sheep's Head to Toe Head SPA	Sea cliffs	Drone flight path directly over the protected habitat feature	<p>The site is well managed and visitor movements are restricted within the core movement area.</p> <p>Drone usage at the site was recorded; the drone was observed flying along the cliff face which imposes new threats to the special qualifying interest species of the Sheep's Head to Toe Head SPA. Drone usage at the site should be restricted or managed appropriately.</p> <p>The observations and recommendations are consistent with the 2015 (Table 3.6) results with the addition of the Drone recommendation.</p>
Dursey Sound	Kenmare River SAC Beara Peninsula SPA Garnish Point pNHA	Dry heaths; and Sea cliffs	Localised disturbance to breeding bird species and trampling of Annex Habitats	<p>Visitors continue to have minor localised adverse impact at this site which relate to vegetation compaction, with trampling being present at key pinch point locations.</p> <p>As with previous year, provisions to minimise impacts from trampling should be explored such as:</p> <ul style="list-style-type: none"> The erection of additional signage at the visitor parking area could provide guidance to visitors walking the trails behind the cable car station to stick to the paths provided and avoid unnecessary disturbance and/or trampling of dry heath and/or ground-nesting birds. Erection of temporary moving trails to disperse trampling across the site sequentially or fixed marking of walkways to ensure a unified area is sacrificed to preserve all surrounding habitat. <p>Any current or future works to facility upgrades must be undertaken in compliance with the WAW Site Maintenance Guidelines. Where possible, spoil heaps and construction vehicles should be stored on hard surfaced areas to avoid impacts to the surrounding vegetation.</p> <p>Any increase in visitor numbers to the site should require a review of current road access from the main Allihies to Castletownbere road which is extremely narrow for larger vehicles such as camper vans and should consider road safety considerations and local residents.</p>

⁴⁹ Key ecological impacts identified within this report in relation to habitat features, condition and flora species as well as impacts identified to bird species further detailed in Appendix II of this report.

				<p>These recommendations are in line with those identified as part of the monitoring program from all previous years 2015 – 2017.</p>
Bray Head	<p>Valencia Harbour/Portmagee Channel SAC</p> <p>Iveragh Peninsula SPA</p> <p>Valentia Island Cliffs pNHA</p>	N/A	No Identifiable environmental effects	<p>The signature discovery point is well managed and well maintained. The assessment focused on the receiving environment of the discovery point which showed visitors had no adverse effect on the ecological features of the site.</p> <p>Monitoring efforts at this site could be developed to incorporate the wider area and observe visitor movements patterns around the headland and not just the receiving area of the discovery point.</p> <p>These recommendations were consistent with those suggested in 2015 (Table 3.11).</p>
Blasket View	<p>Blasket Islands SAC</p> <p>Dingle Peninsula SPA</p> <p>Slea Head pNHA</p>	N/A	No Identifiable environmental effects	<p>The site is robust and well managed. This is consistent with the recommendations from 2015 (Table 3.14).</p>
Loop Head	<p>Lower River Shannon SAC</p> <p>Loop Head SPA</p>	Dry Heath and Sea Cliffs	Localised Trampling of cliff-top vegetation	<p>The existing carpark is small and there is evidence of the surrounding habitat being used as unrestricted parking facilities. The site should explore options to reduce risk to the surrounding habitats such as the placement of rocks around the carpark boundary to reduce vehicular access but maintain the natural landscape character. Any on site works must be undertaken in compliance with the WAW Site Maintenance Guidelines to ensure no adverse effects to the environment occur as a result of any proposed works. Similarly, all works must be undertaken in compliance with the EU Habitats Directive (Council Directive 92/43/EEC) and all other relevant environmental legislation.</p> <p>There is evidence of soil/peat compaction along localised desire lines although the overall habitat condition is good. If visitor numbers were to increase the site could benefit from on site management of trails; such as the use of alternating trails marked with ankle high guidance ropes with minimal impact pegs inserted into the ground. These trails could be moved regularly to disperse the potential effects along the grassland areas to prevent exposing soil/peat along the marked trails.</p> <p>These recommendations build and expand on those proposed in 2015 (Table 3.17). Visitor effects at this site have increased since those recorded in 2015.</p>
Cliffs of Moher	<p>Cliffs of Moher SPA</p> <p>Cliffs of Moher pNHA</p>	N/A	Localised Trampling of cliff-top vegetation	<p>The areas which are restricted from visitor movements have low species diversity. No rare or protected species or habitats were recorded on site. Visitor movements are causing erosion of soils and the removal of vegetation along the cliff-top walks. However, there are no ecological features of significance which are being impacted by visitor movements. Consideration could be given to control/manage visitor movements to reduce erosion at the site, and potentially facilitate the rehabilitation of the grassland habitats.</p> <p>The management team has already restricted the use of drones on site and has erected signs in this regard. Potential sources for disturbance such as drone use should be managed and monitored carefully at the discovery point.</p> <p>These recommendations are consistent with those suggested in 2015 (Table 3.20).</p>

Killary Harbour	Mweelrea/Sheeffry/Erriff Complex SAC/NHA Maumturk Mountains SAC/NHA	N/A	No identifiable environmental effects	<p>Visitor activities on site have no identifiable effect on the ecological features present; which is consistent with the recommendations from 2015 (Table 3.23).</p> <p>It is noted that there is a considerable presence of Rhododendron which should be controlled to maintain the existing landscape character and limit potential effects to the aesthetic of the site.</p>
Keem Strand	Croaghau/Slievemore SAC / pNHA Achill Head SAC	Wet heath	Localised Trampling of grassland vegetation	<p>None of the effects observed are recorded as having any long-lasting effect to the site. The site has a high density of visitors, and there is some evidence of minor elements of erosion or heavy compaction where visitors access the upper cliff walks; this is consistent with the recommendations made in 2015 (Table 3.26).</p> <p>Consideration should be given to site management action such as the appointment of a seasonal warden to ensure litter at the site is controlled and/or camping or hiking activities on site are controlled.</p>
Downpatrick Head	Downpatrick Head pNHA	N/A	Localised Trampling of clifftop vegetation	<p>The site consists of a carpark with desire line marked trails. Where visitor numbers are highest around the blowhole there is significant infrastructure for safety and to manage visitor impacts.</p> <p>The grassland habitats on site are tolerant to disturbances and overall the habitat condition is favourable. However, the pressures associated with increased visitor numbers could cause damage to the site.</p> <p>Consideration should be given to controlling visitor movements on site. This could be achieved with the use of a moving pathway demarcated by an ankle high rope border. This would facilitate the dispersal of impacts and facilitate the recovery of impacted areas. Any on site works must comply with the WAW Site Maintenance Guidelines.</p> <p>These recommendations are consistent with those from 2015 (Table 3.29).</p>
Mullaghmore Head	Bunduff Lough and Machair/Trawlua Mullaghmore SAC / pNHA	Dry heath and Sea Cliffs	Localised Trampling of clifftop vegetation	<p>Visitor movements across the clifftop create localised areas of compaction and impact to herbaceous vegetation. However, these paths are so clear that visitor movements have a high degree of trail fidelity. In addition, there were movements along the rocks at the base of the cliffs.</p> <p>Consider controlling visitor movements through education. Information signage could be erected to identify the importance of the habitat features and species present to inform the visitors of the sensitives present within the system. Species such as the Devils-Bit scabious (<i>Succisa pratensis</i>) and the 6-spot burnet moth (<i>Zygaena filipendulae</i>) could be highlighted.</p> <p>These recommendations are consistent with those suggested in 2015 (Table 3.32).</p>
Sliabh Liag	Slieve League SAC / pNHA West Donegal Coast SPA	Wet heath and Dry heath	Localised Trampling of clifftop vegetation and erosion directly adjacent to the built path	<p>The site is well managed and the impacts observed were predominantly directly adjacent to the existing built walkways. Consideration should be given to the widening of the existing walkways to facilitate large groups. Overall the site management is robust and the habitat condition is favourable despite the presence of a few desire lines through the heath. This is consistent with the 2015 recommendations and shows an increase in the overall habitat condition present on site.</p>
Cionn Fhánada (Fanad Head)	Ballyhorrisky Point to Fanad Head SAC / pNHA	Sea cliffs	Localised Trampling of clifftop vegetation	<p>The lighthouse is privately owned and is now open to tourists. Visitor activities on site had limited impact on the ecological features present. Consideration should be given to control/ manage visitor movements on site if visitor numbers increase. This recommendation is consistent with those suggested in 2015 (Table 3.38).</p>

	Horn Head to Fanad Head SPA			
Malin Head	North Inishowen Coast SAC / pNHA	Wet heath and Dry heath	Evident damage to the protected habitat features and vegetation	<p>There is clear evidence of damage occurring to the habitat features of the site as a direct result of visitor movements. Visitor movements are dispersed across the site and are currently not managed or controlled. There are clear evidence the existing car parking facilities are under capacity for the volumes of visitors the site receives daily. An overall assessment of the site management practices is required to assess the steps and measures needed to reduce the harmful activities which currently are evident on site. All works to the site must comply with the WAW Site Maintenance Guidelines.</p> <p>This site should be monitored closely and action should be taken if the current condition is not improved.</p> <p>These recommendations are consistent with those made in 2015. Since 2015 there have been improvements made to the site facilities with an extension to the carpark facilities and provision of toilet facilities. However, additional measures are still required as the effects are still present.</p>

Section 5 References

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