

National Tourism and Environmental Monitoring Programme Malin Head, 2023



**Fáilte
Ireland**

Turasóireacht Náisiúnta
An tUdara Eorbartha
National Tourism
Development Authority

National Tourism and Environmental Monitoring Programme

Annual Report for Malin Head 2023

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MALIN HEAD – INTERESTING FINDS

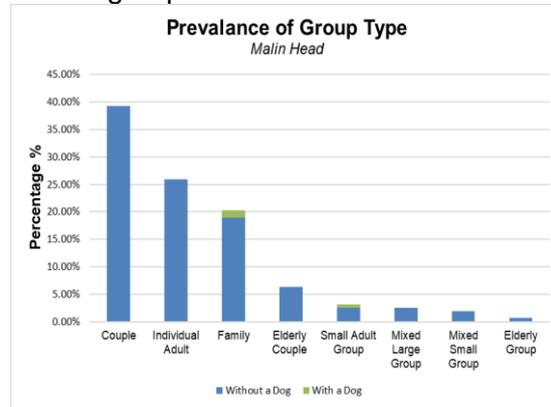
Corncrake – Red-listed Species at Malin Head

Corncrake (*Crex crex*) is a red-listed species that has declined by 96% in Ireland since the 1970s. Malin Head has been identified as a probable breeding site for Corncrake (BirdWatch Ireland, 2023) and the site overlaps with the EU Corncrake LIFE project (Corncrake LIFE, 2023b).



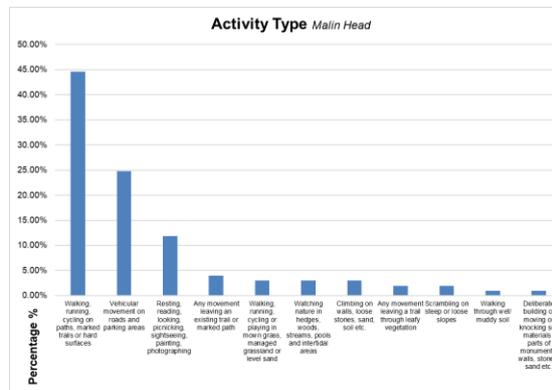
Visitors

- 225 visitor groups visited the site between an 8-hour period.
- The average dwell time for visitor groups was 35 minutes.



Visitor Interaction

- 89% of the activities observed were low level activities.
- 27% of the visitor groups observed undertook activities other than just walking.



Key Recommendations

- A traffic management plan should be produced to deal with traffic congestion.
- Promotion of existing public transport, active travel infrastructure and a shuttle bus.
- Repair of broken fencing and paths where erosion has occurred.
- Formalisation of paths to reduce erosion, braiding and path widening.
- Additional signage should be provided, such as to keep dogs leashed for Corncrake conservation.
- Appropriate land management is recommended to promote sustainable farming practices, reduce overgrazing, and to prevent disturbance and habitat loss for Corncrake.



1.0 INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD) Consulting Engineers was appointed by Fáilte Ireland to conduct Visitor and Environmental Surveys as part of the National Environmental Surveying & Monitoring Programme. Fáilte Ireland regularly engages with environmental research that is used to make informed management decisions and produce robust guidelines to facilitate the protection of the environment. From its inception in 2014, the Wild Atlantic Way (WAW) Operational Monitoring Programme has been conducting research into the impacts of tourism on the receiving environment. To date the surveys have been monitoring 57 sites and recorded the activities and effects of over 26,000 visitors to WAW discovery points.

Building on the success of the WAW environmental monitoring programme which ran from 2015-2019, Fáilte Ireland expanded the programme to a national level. From 2021 to 2022 the programme monitored 19 individual sites located in all of Fáilte Ireland's regional areas; The Wild Atlantic Way, Irelands Hidden Heartlands, Ireland's Ancient East, and Dublin. This 2023 National Monitoring report builds on environmental surveying and monitoring undertaken on behalf of Fáilte Ireland as far back as 2015.

Due to constraints with the timing of the ROD appointment in mid-2023 and the need to undertake the surveys before the end of peak summer season (i.e., end of August) it was decided that a reduced scope be implemented. Surveying was carried out at four of the sites, namely Bray Head (Valentia Island) in Co. Kerry, Malin Head in Co. Donegal, Dursey Island in Co. Cork and Keem Bay in Achill Island, Co. Mayo. Figure 1.1 below shows the locations of these sites.

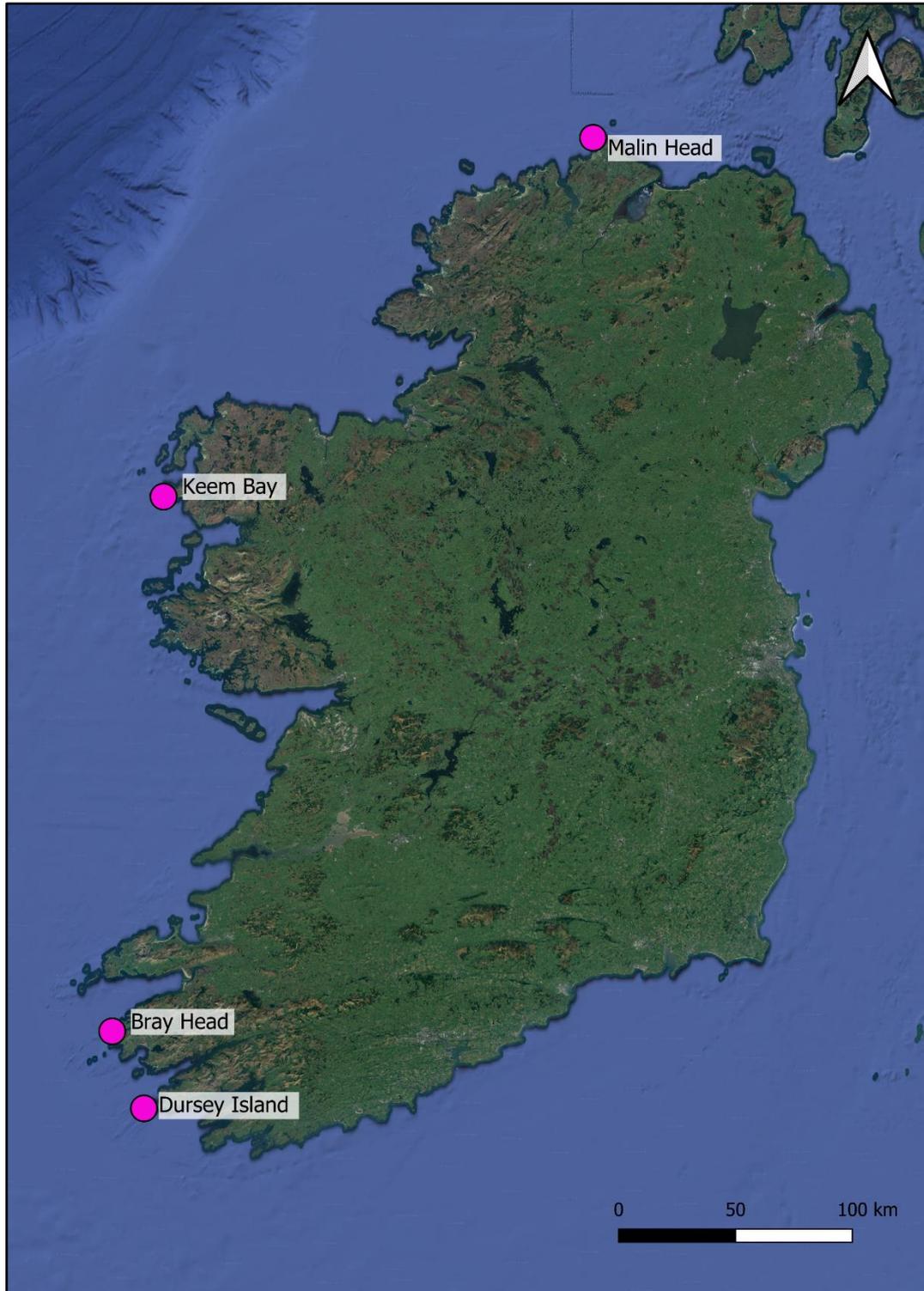


Figure 1.1 Environmental Monitoring Programme 2023 locations. Basemap provided by Google.

1.2 Aim of the Report

The purpose of the monitoring programme is as follows:

- To gain insight from an environmental perspective at popular tourism sites across Ireland;
- To obtain data on visitor numbers, visitor behaviour, path, and trail conditions etc. for each site;
- To obtain data relating to habitats, flora, and fauna for each site;
- To identify observable trends or variations among the sites;
- To identify favourable and unfavourable behaviour and practices at sites; and,
- To make recommendations where appropriate for site management for the benefit of the site, the visitor, and the natural environment.

The purpose of the visitor and environmental monitoring is to gather information on a sample of visitors to Malin Head on a typical Friday during the month of August. Subsequently answering the following questions:

- How many people visit Malin Head?
- How long do visitors spend at Malin Head?
- What is the demographic spread of visitors to Malin Head?
- What modes of transport do visitors to Malin Head use?
- What habitats are found on Malin Head, and what condition are they in?
- What type of paths are present on Malin Head, and what condition are they in?
- How is tourism impacting on the ecological integrity of Malin Head?
- What can be done to reduce any impacts on the natural environment as a result of tourism?

1.3 Site Description of Malin Head

Malin Head, Co. Donegal, is the most northern point of Ireland. The area being surveyed for this report (“the site”) consists of the car park at Malin Head, the road and pathways to the north of the car park leading to Malin Head, the eastern trails as far as the Éire 80 sign as well as the western trails beyond Póilfreann (as far as is mapped in the following sections). Malin Head is accessible via the R242. The site is served by a local bus route (route 954) from Carndonagh which also stops at Malin Town. The car park at Malin Head can hold approximately 11 cars, although many visitors park along the road leading up to the carpark. Informative signage relating to heritage features and the environment is available to visitors at the car park and directional signage is also provided. A coffee van was present at the time of the survey.

Malin Town, located approximately 12km southeast of Malin Head, is listed as a ‘Strategic Town’ performing ‘Special Economic Functions’ in the Donegal County Development Plan (CDP) (2018-2024) in-part due to tourism at Malin Head and its association with the WAW programme (Donegal County Council (DCC), 2018). The Donegal CDP also identifies Malin Head and Carndonagh as a potential greenway development route (DCC, 2018).

Malin Head is within the North Inishowen Coast Special Area of Conservation (SAC) and the North Inishowen Coast proposed Natural Heritage Area (pNHA). Malin Head Special Protection Area (SPA) [004146] is 1.5km southeast of the site.

Examples of the scenery at Malin Head are presented in Plates 1.1 and 1.2 below.



Plate 1.1 View west from the car park.



Plate 1.2 A north-east facing view along the coast at Malin Head.

1.4 Donegal County Council Monitoring Data

Donegal County Council carries out monitoring at several tourism sites within the county, including Malin Head. The monitoring involves collecting pedestrian and vehicle counts at each site. Between April 2021 and March 2022 approximately 54,100 people visited Malin Head (DCC, 2023), 58% of these people visited during the peak summer months of June, July and August. Between April 2022 and March 2023 approximately 52,800 people visited Malin Head (DCC, 2023), 49% of these people visited during the peak summer months of June, July and August.

On the 11th of August 2023, which was the day the survey at Malin Head was undertaken, data on vehicle type over 24 hours shows that short trucks were the most prevalent vehicle at 54%, cars were the second most prevalent at 39%, and vans were the third most prevalent at 5% (DCC, 2023). 'Short-trucks' is likely to include larger cars, SUVs and small vans. The remaining vehicle types in order of prevalence were long trucks at 0.9%, bikes at 0.7% and motorbikes also at 0.7%. Pedestrians, Medium length trucks and buses were not observed (DCC, 2023). This data on vehicle types is also presented in Appendix III.

1.5 Critical Infrastructure

Tables 1.1 - 1.3 below provide information on the infrastructure at Malin Head. Uisce Éireann's website was used to access information on the Water Supply and Wastewater Treatment Capacity Registers for County Donegal (Uisce Éireann 2023a, b). The Donegal County Development Plan (CDP) 2018-2024 provided information on water supply, wastewater treatment and transport infrastructure at Malin Head (DCC, 2018).

Table 1.1 Malin Head Wastewater Infrastructure

Wastewater Treatment Plant (WWTP)	Uisce Éireann Indication of Capacity
<ul style="list-style-type: none"> Toilet facilities are available on this site. Wastewater treatment is provided by Carndonagh /Malin WWTP, which has potential spare capacity. 	<ul style="list-style-type: none"> Potential spare capacity.

Table 1.2 Summary of Drinking Water infrastructure at Malin Head

Drinking Water	Water Resource Name (WRZ)	Uisce Éireann Indication of Capacity
Drinking water is not available on site.	Inishowen West & Carndonagh & Culdaff	Potential Capacity Available – Level of Service (LoS) improvement Required

Table 1.3 Summary of Transport infrastructure at Malin Head

Nearest Settlement	Current Transport Infrastructure	Comment
Malin Town	Malin Head is accessed by the R242. There is a small car park on site and a bus stop.	The site is served by the 954 bus from Carndonagh, which also stops at Malin Town.

2.0 METHODOLOGY

In line with the methodology used in 2021 and 2022, the following surveys were undertaken:

- Visitor Characterisation Surveys
- Ecological Surveys
- Pathway and Habitat Condition Surveys

The survey at Malin Head was undertaken on the 11th of August 2023. The survey was undertaken using two surveyors over an eight-hour period between 9am and 5pm. The weather conditions were clear during the survey, becoming somewhat overcast in the late morning, with light rainfall in the late afternoon. Maximum temperatures were between 14.0° C and 20.4° C, and the mean wind speed was 15.1 knots (Met Éireann, 2023). The survey was undertaken on a Friday and in reasonable weather conditions, to ensure that the data was comparable to previous years. The sub-sections below present the methodology used at each site.

2.1 Visitor Characterisation Survey

A 'visitor' refers to an individual, couple or group who arrive together. The following variables were recorded for each visitor:

- Activity Type
- Dwell Time
- Group Type
- Transport Type
- Use of Available Interpretive Signage

The visitor characterisation survey was undertaken continuously over an eight-hour period, between 9am and 5pm.

One surveyor was positioned at the car park on Malin Head, and recorded each group as they arrived and left, recording the variables listed above. The second surveyor undertook the survey of visitor behaviour, which was carried out by monitoring a sample of visitors as well as the ecological and pathway surveys and habitat condition assessments. The activities and impacts were recorded following the conventions presented in Appendix I.

2.2 Ecological, Pathway and Habitat Condition Surveys

The habitat condition survey was carried out following the methodology outlined in the 2021 report. All habitats were classified and mapped in accordance with *A Guide to Habitats in Ireland* (Fossitt, 2000) and *Best Practice Guidance for Habitat Surveying and Mapping* (Smith et al. 2011). Notes were taken on species composition, habitat condition and existing pressures. A desktop study was undertaken to identify rare and protected species and designated sites in the vicinity of each site. Incidental sightings of birds, mammals, reptiles etc. were also recorded during the survey.

The paths and desire lines at each site were surveyed and mapped, and notes were taken on substrate, details of any path construction, evidence of erosion such as braiding and path widening, and any changes in the condition when compared to previous surveys. Notes were taken on whether the paths were accessible for wheelchairs, buggies, and less able-bodied people.

Pathways were mapped and colour-coded to show the path type (e.g., tarmac, grit, desire line etc.) and condition (good/ moderate/ poor) for each 100m section. The path condition survey covered the areas on the site surveyed in 2021 and 2022, as well as any other paths on the sites. In addition to the pathway assessment, any features on site, including buildings, cairns, and dry-stone walls were documented. Notes and photographs were taken of these features to document their condition.

In addition to the information collected in 2021 and 2022, in 2023, the publicly available heatmaps (available at: <www.strava.com/heatmap>) were used to ascertain the routes being used by people with the online fitness app downloaded over the previous 2-year period. In addition to the pathway condition assessment, the heat maps provided valuable information on braiding and/or desire lines.

2.2.1 Habitat Condition Assessment Methodology

A rating scale was used to assess habitat conditions across all sites (See Table 2.1). The following criteria were used to assess habitat condition:

- Extent of habitat degradation;
- Impact of habitat degradation (localised or widespread);
- Potential for the habitat to recover; and
- Whether or not intervention is required.

For the purpose of this report, as was the case with the 2021 and 2022 reports, degradation is defined as any change to a habitat which reduces its viability or the viability of the species which occur there in the long-term. An assessment of the habitat condition was made every 100m of the transect. Habitat conditions were rated on a scale of 1 to 5, with 1 indicating to that there was no impact, and 5 being that there was a high impact on the habitat.

Table 2.1 Habitat Condition Assessment Rating Scale

Scale	Condition
1	No evidence of habitat degradation.
2	Localised habitat degradation. Habitat capable of rapid recovery.
3	Widespread habitat degradation. Habitat capable of rapid recovery.
4	Localised habitat degradation. Intervention required for full recovery.
5	Widespread habitat degradation. Intervention required for full recovery.

3.0 RESULTS

3.1 Visitor Characterization Survey

The visitor monitoring surveys recorded a total of 225 visitor groups. The 'couple' group was the most-recorded group type at this site, with cars being the most prevalent mode of transport. The average dwell time for the site was 35 minutes with the following activities undertaken during the survey (listed in order of occurrence rate):

- Walking, running, or cycling on paths, marked trails or hard surface.
- Vehicular movements on roads and parking areas.
- Resting, reading, looking, picnicking, sightseeing, painting, photographing.
- Any movement leaving an existing trail or marked path.
- Walking, running, cycling, or playing in mown grass, managed grassland, or level sand.
- Watching nature in hedges, woods, streams, pools, and intertidal areas.
- Climbing on walls, loose stones, sand, soil, etc.
- Any movement leaving a trail through leafy vegetation.
- Scrambling on steep or loose slopes.
- Walking through wet/ muddy soil.
- Deliberate building or moving or knocking site materials – parts of monuments, walls, stones, sand etc.

3.1.1 Dwell Time

The average dwell time for visitors at the site was 35 minutes. The median dwell time was 20 minutes, i.e. 50% of the visitor groups observed remained at the site for less than 20 minutes. The minimum dwell time observed was less than one minute. The short duration stays occurred where visitors arrived and could not find parking, and by cyclists taking part in an event, who arrived at the car park and left immediately. The maximum dwell time recorded was 7.5 hours, which accounts for the owner of a van selling coffee. Approximately 24% of the visitor groups did not leave the car parking area, this was possibly due to no parking being available at the site. Figure 3.1 presents the dwell time of visitor groups.

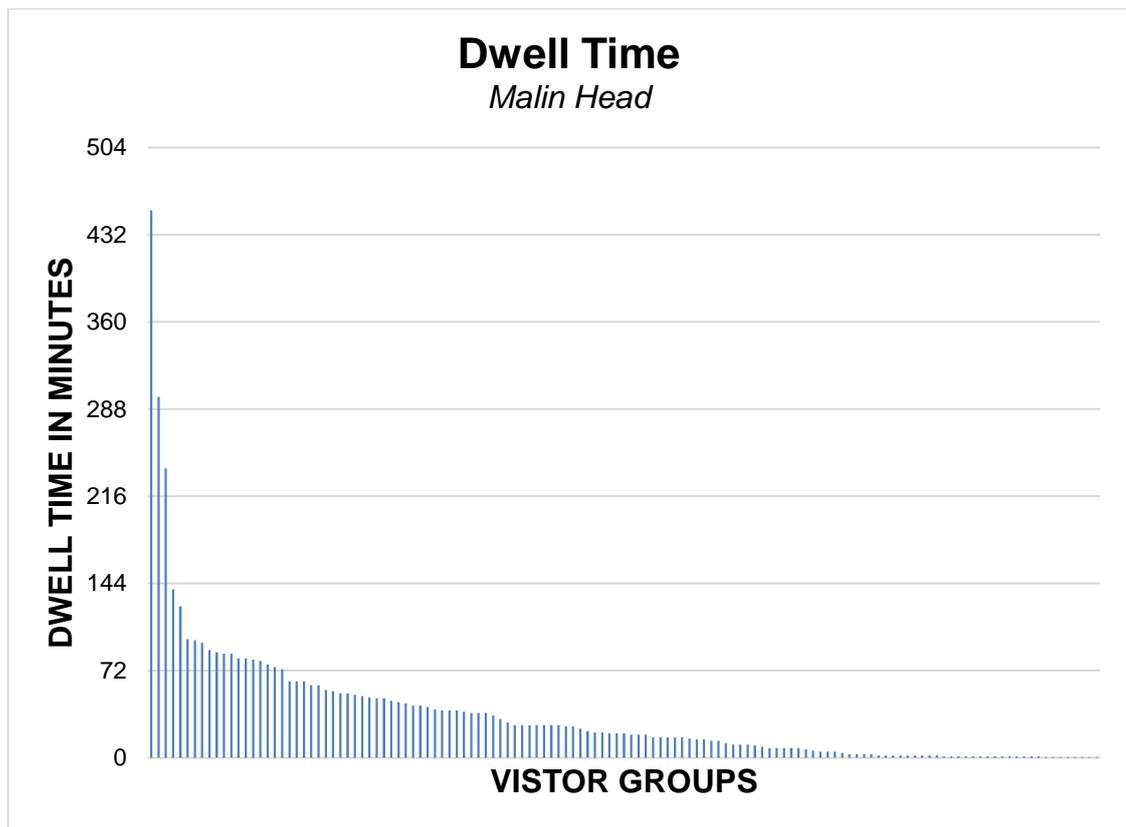


Figure 3.1 Dwell Time of Visitor Groups at Malin Head

3.1.2 Prevalence of Group Type

Figure 3.2 presents the prevalence of group types observed visiting the site, with and without a dog. 'Couples' made up the largest proportion of group type with 40% of all groups observed. The second largest group type was 'individual adult' with 26%. The third largest group type observed was 'family' with 20%. The remaining group types observed in order of prevalence were 'elderly couple', 'small adult group', 'mixed large group', 'mixed small group', and 'elderly group'. There were no recordings for the following group types 'family with elderly', 'individual elderly', 'large adult group', and 'under 18'. Two 'family' groups had a dog, and one 'small adult group' had a dog. Some groups, when observed, did not keep their dogs on leads. This has the potential to cause disturbance to wildlife, in particular Corncrake.

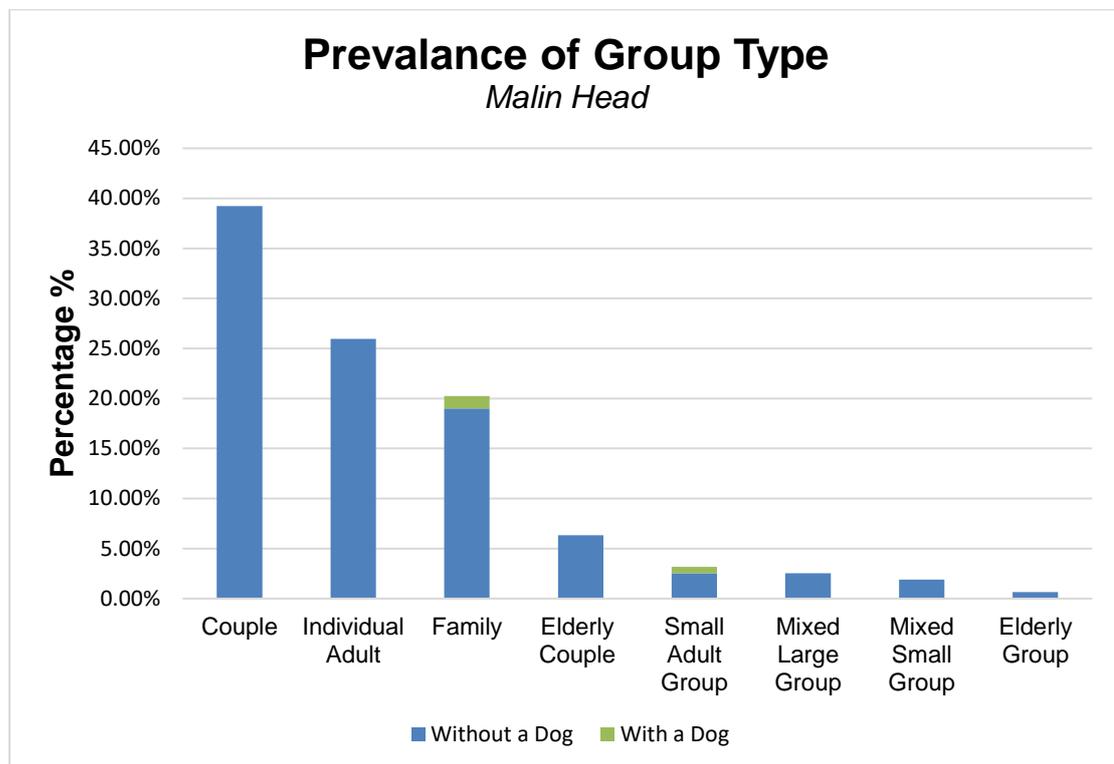


Figure 3.2 Group Types that Visited Malin Head

3.1.3 Prevalence of Transport Type

Figure 3.3 presents the transport types recorded. Cars (163 no.) were the most prevalent mode of transport, with 82% of groups using cars to get to the site. The second most prevalent type was bicycle (19 no.) at 9%. The third most prevalent type was motorbike (8 no.) at 4%. The remaining transport types were campers (6 no.), pedestrians (4 no.), and buses (1 no.). The car park was at capacity for most of the survey. This led to cars arriving and turning around straight away. These cars then parked along the roads leading to the car park and the occupants walked up to the Malin Head. The nearest town to Malin Head is Malin Town, which is approximately 12km away. Therefore, it is highly unlikely that people walk to Malin Head from there, although small numbers of people could theoretically walk from houses closer to Malin Head.

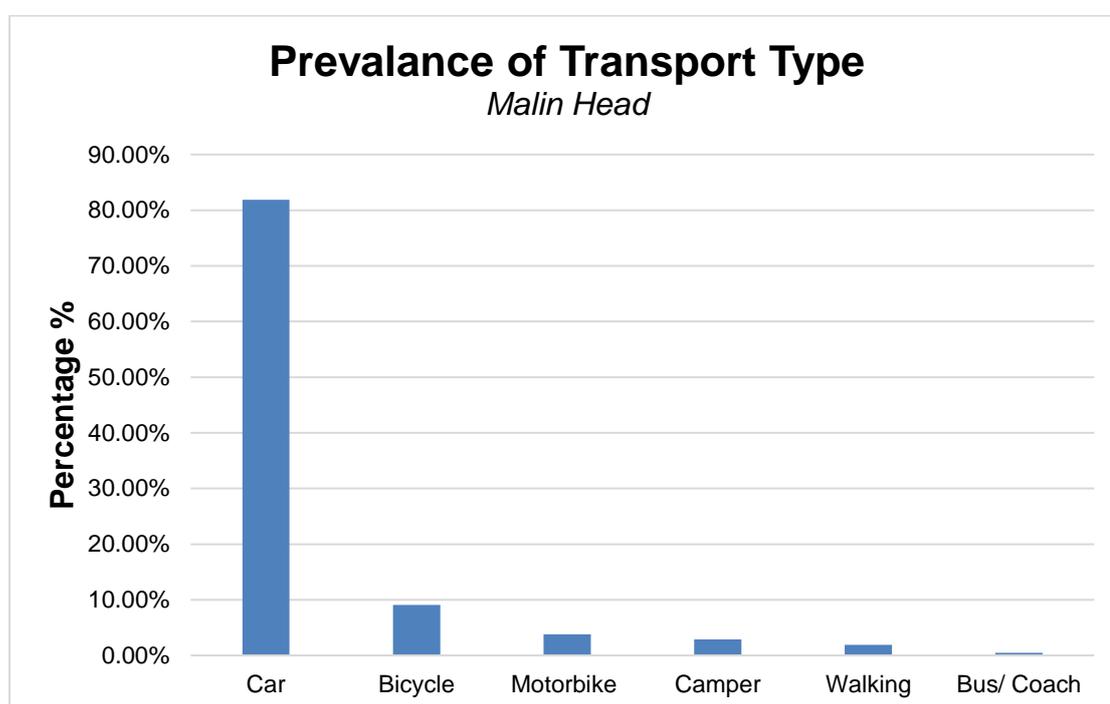


Figure 3.3 Mode of Transport Used to Visit Malin Head

On the 11th of August between 9am to 5pm, which was the day that the survey at Malin Head was undertaken, data from a continuous counter was reviewed over the same 8-hour survey period. 99% of the transport types recorded were vehicles, which included motorbikes, cars, vans, short trucks, medium trucks, long trucks, and buses, and only 1% was bicycle (DCC, 2023). There were no records of people walking.

The counter recorded vehicles ‘approaching’ and ‘receding’ from Malin Head. The data was expected to show very similar numbers of vehicles approaching and receding, however, this was not the case. For example, over the course of the entire 24-hour period, 148 cars were recorded approaching, but only 65 were recorded receding. For the ‘short trucks’ category, 92 were recorded approaching and 203 were recorded receding. Even if the counters were misidentifying cars and short trucks, there is an extra 28 of these vehicles receding. Given the difference in the number of vehicles approaching and receding from Malin Head, the accuracy of the counter must be questioned.

The counter data did not include a breakdown of vehicle type by the hour, and the following percentages reflect transport types over the 24-hour period. The category 'short trucks' were the most prevalent vehicle type at 54%. Cars were the second most prevalent vehicle type at 39% and vans were the third most prevalent number at 5%. 'Short trucks' are likely to include larger cars and SUVs. The remaining vehicle types in order of prevalence were 'Long trucks', bicycles, and motorbikes, each at <1%. Medium length truck, buses and pedestrians were not recorded in 2023 (DCC, 2023). This data is presented in Appendix III.

Between 09:00-17:00, 459 vehicle passes were recorded on the continuous counter. This included four wheeled vehicles and motorbikes. By dividing the number of vehicles recorded by two, it can be inferred that 230 vehicles visited Malin Head during this time. Furthermore, the vehicle categories used in the counter data was different to the categories used in the survey. The definitions of 'short truck', 'medium truck' and 'long truck' were not provided, which meant a direct comparison of vehicle types was not possible.

A comparison between the results from the survey and the counter data, showing the vehicles, bicycles and pedestrians visiting Malin Head, is presented in Table 3.1 below.

Table 3.1 Comparison of counter and survey data

	Vehicles	Bicycles	Pedestrians
Survey	202	19	4
Continuous Counter Data	230	2	0

The results of the surveys and counter data are broadly consistent, with vehicles taking the vast majority of visitors to Malin Head. The most likely reason for the discrepancy in the numbers recorded is that 1) the counter did not detect bicycles or pedestrians and 2) that the counter, which along the road leading to the car park, recorded 28 vehicles which turned around before reaching the car park.

3.1.4 Read Available Signage

Figure 3.4 presents the number of visitor groups observed reading the available signage at the car park on Malin Head. A higher proportion of visitor groups did not read the signage, with 93% of visitor groups not reading the signage, and 7% of visitor groups reading the signage. However, it must be taken into consideration that a proportion of the visitor groups may be local to the area and may have previously read the signage on previous visits.

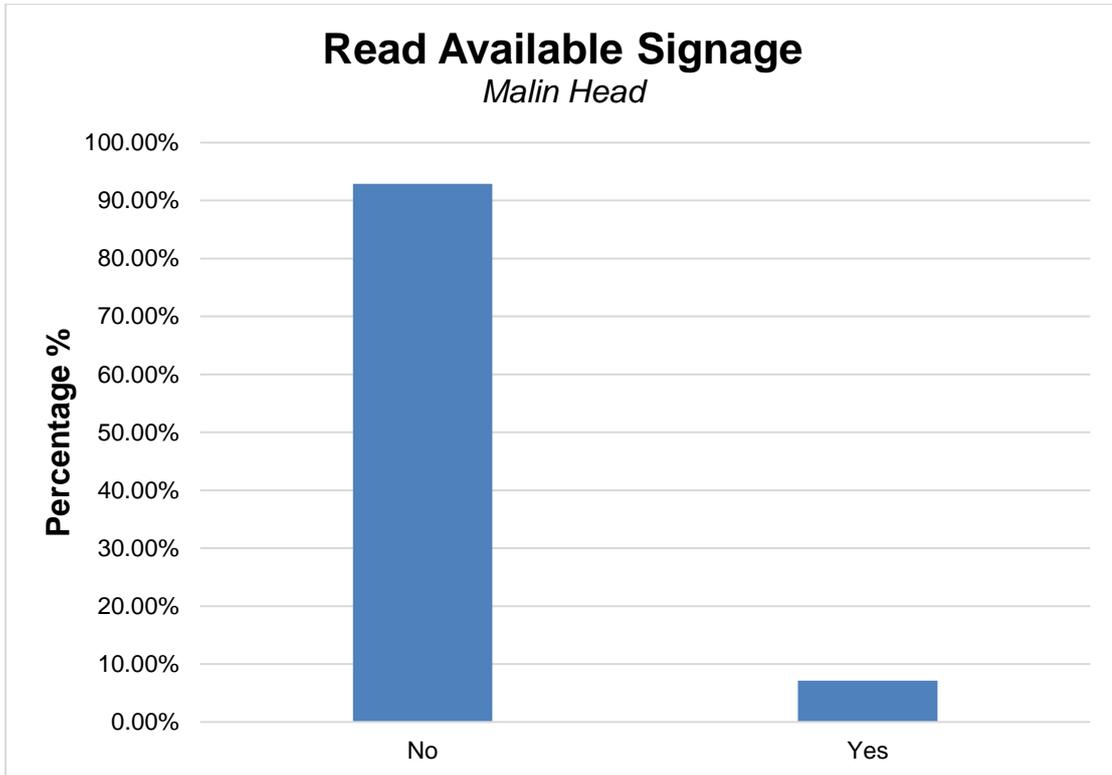


Figure 3.4 Use of Signage at Malin Head

3.1.5 Activity Levels

Figure 3.5 presents the activity levels at Malin Head. A sample of 60 visitor groups' activities were observed. Activity levels related to impact of an activity on the environment. The results are shown below with the activity categories detailed in Appendix I. For example, walking on marked trails and hard surfaces is a low-level activity, whereas disturbing wildlife and picking herbaceous vegetation are considered high level activities. 87% of the activities observed at Malin Head were considered low level activities. The low-level activities observed included walking, resting sightseeing, photographing, picnicking, watching nature, and vehicular movements on roads and in the car park. 9% of the activities observed were considered medium level activities. The medium level activities observed included walking off an existing trail or marked path, any movement through leafy vegetation and climbing site features. 4% of activities observed were considered high level activities. The high-level activities included walking through wet and muddy soil, scrambling on steep slopes, and deliberate moving and knocking of site features.

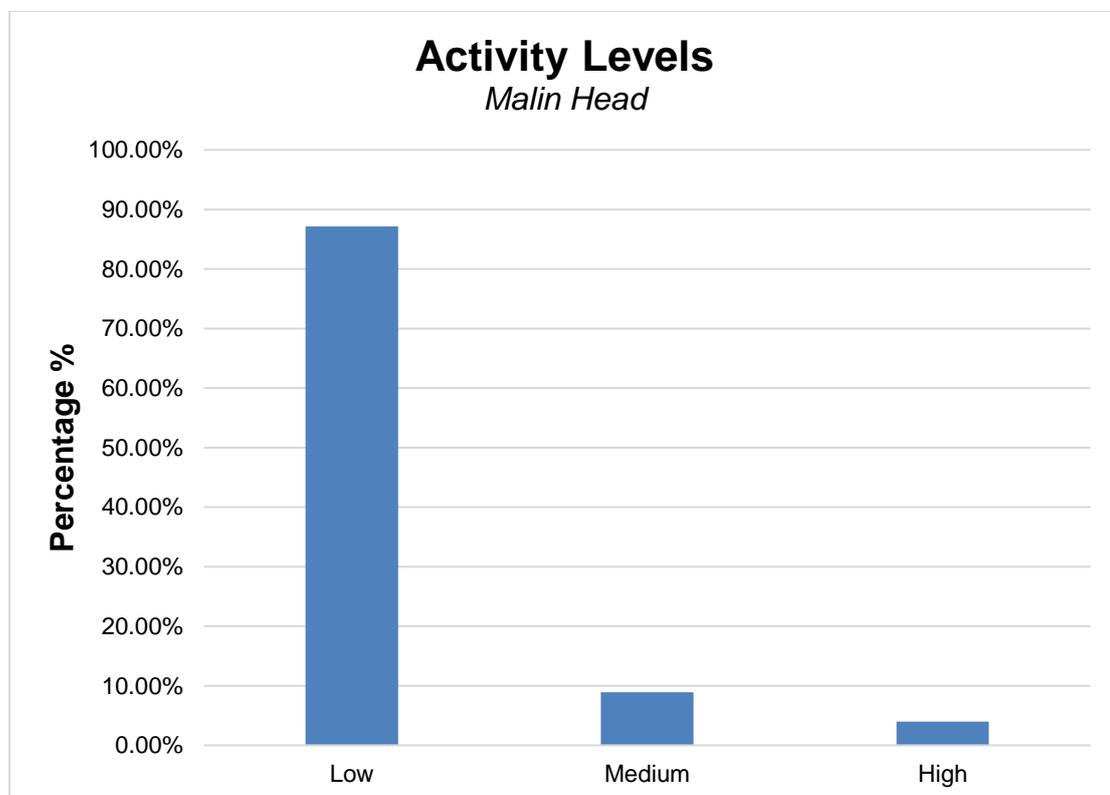


Figure 3.5 Categories of Activity Level at Malin Head

3.1.6 Impact Severity Levels

Figure 3.6 presents the impact severity level observed at the site. A sample of 60 visitor groups' activities were observed. Impact severity levels relates to the impact and severity of the activities undertaken at the site. The results are shown below with the activity categories detailed in Appendix I. The survey found that 89% of the activities observed had low level impact severity on the site, low level includes no effects, desire lines on grassy and leafy vegetation, and temporary disturbance of wildlife. 11% had a medium level of impact severity, medium level includes desire lines outside the existing trail or marked path, trampling of herbaceous vegetation, and incidental moving or knocking of site feature materials. No severe level impacts were observed.

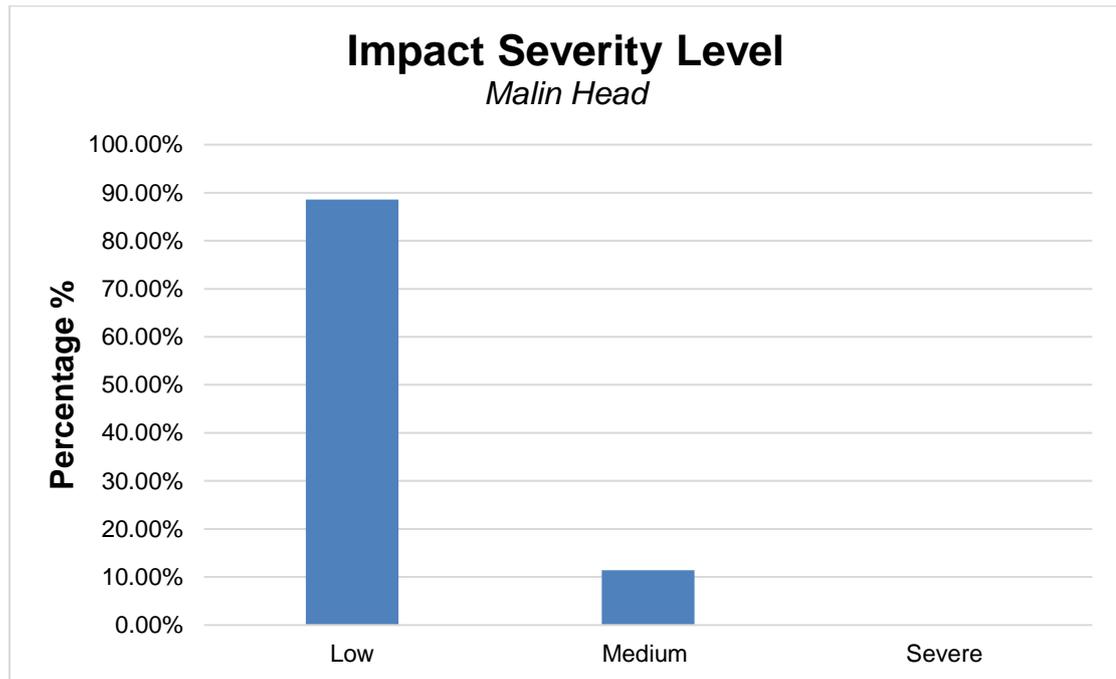


Figure 3.6 Categories of Impact Severity Level at Malin Head

3.1.7 Activities Undertaken Other than Walking

Figure 3.7 presents the number of visitor groups observed undertaking activities other than just walking. The majority of visitor groups did not undertake activities other than walking, representing 73% of groups. 27% of groups were observed carrying out activities other than walking. Other activities observed other than walking include resting, sightseeing, photographing, picnicking, and watching nature.

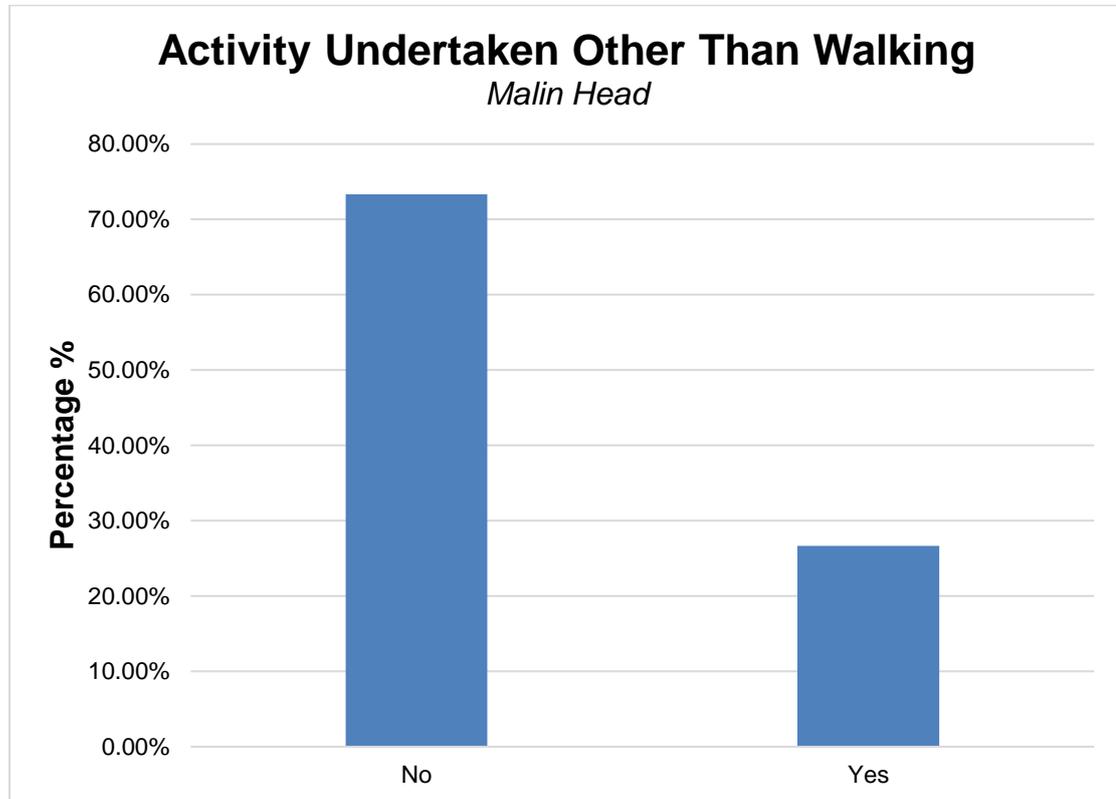


Figure 3.7 Activities Undertaken Other than Walking at Malin Head

3.1.8 Activity Type

Figure 3.8 below presents the percentage of visitor groups' activity types recorded. A sample of 60 visitor groups' activities were recorded. The survey found that 87% of the activities observed were low level activity types as presented in Figure 3.5. Low-level activity types included walking, resting, sightseeing, photographing, picnicking, watching nature, and vehicular movements on roads and in the car park. 9% of the activities observed were a medium-level activity type, which included walking off an existing trail or marked path, any movement through leafy vegetation and climbing site features. 4% of activities observed were considered high-level activities. The high-level activities included walking through wet and muddy soil, scrambling on steep or loose slopes, and deliberate moving and knocking of site feature materials.

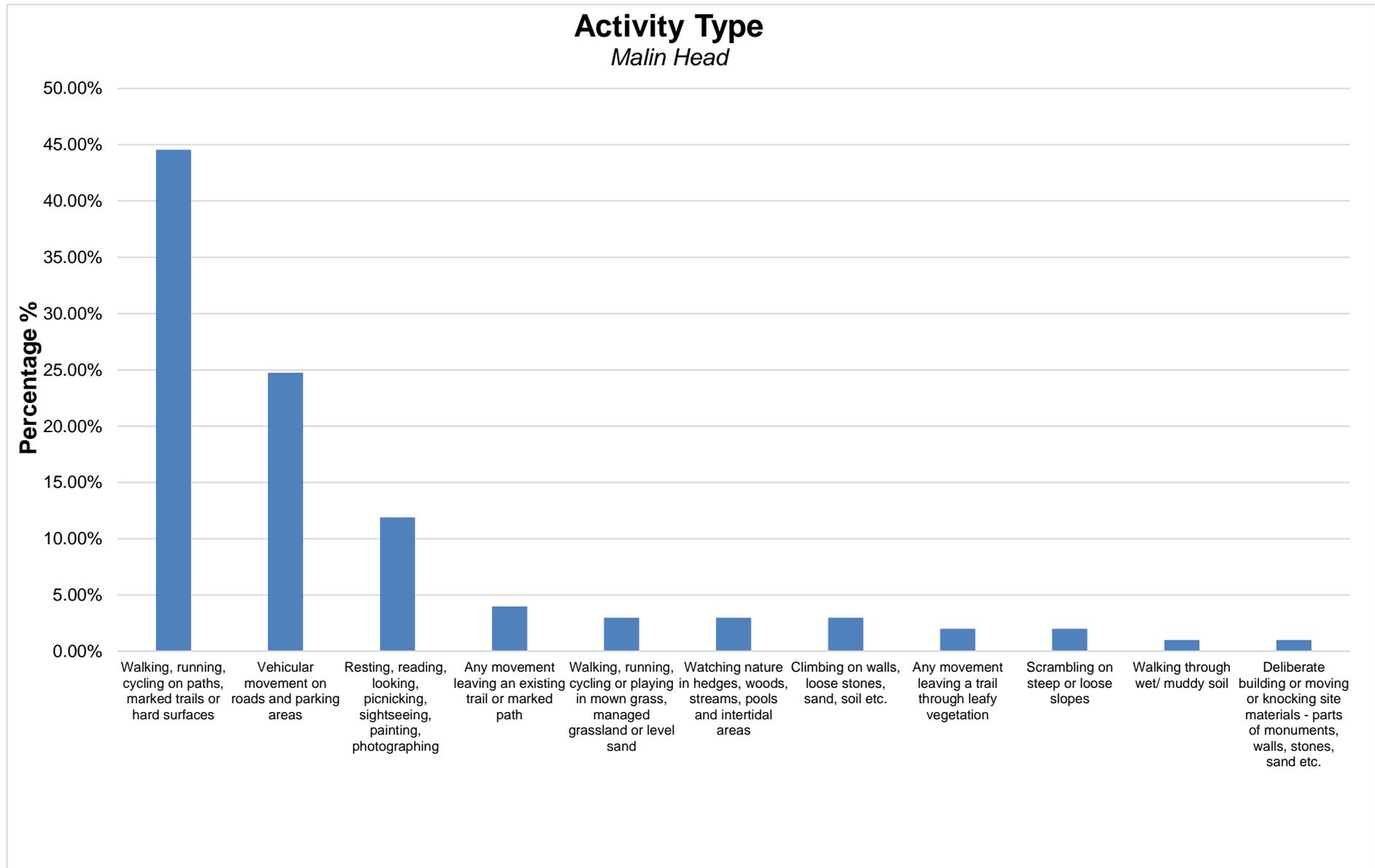


Figure 3.8 Activity Types at Malin Head

3.1.9 Heat Map

Figure 3.9 presents a heat map of visitor movements at the site, provided by Strava. Strava aggregates data from users on its app who opt-in to share their activities and locations. The map shows that the highest level of use between the car park, the signal tower and the Pólifreann. This usage occurs on the gravel paths. Beyond the limit of the gravel path at Pólifreann, braiding and path widening have caused significant damage to surrounding habitats. These are visible in Figure 3.9.



Figure 3.9 Heat map of visitor movements on Malin Head (Strava, 2023)

3.2 Pathways and Habitat Condition

3.2.1 Pathway Condition

There is a gravel path from the lower car park to the coast, where it leads to Pólifreann to the west and the signal tower to the east. The path is stone steps for short steeper sections. Further west, beyond Pólifreann the track is not formalised, but it is well used. Path widening, braiding and erosion are present in this area. Erosion is also present in places along the gravel path, where people leave the path to take photographs. The Strava map in figure 3.9 provides a good indication of their locations. A paved road leads from the R242 to Lloyd's Signal Tower. Pathway conditions at this site varied, with erosion of pathways varying in degrees from 0% to 90%. Approximately half of pathways were reported to be uneven. Examples of each of the pathway types are presented below in Plate 3.1. Pathway types and conditions are mapped in Figure 3.10 below.



Figure 3.10 Colour-coded condition of the main pathway types recorded on the site. Basemap provided by Google.



Plate 3.1 The main pathway types recorded on Malin Head.

Figure 3.11 represents the pathway impact type at the site. The types of impact observed were desire lines at 36%, trampling at 25%, erosion at 18%, exposed soil at 18%, and stormwater erosion at 3% of the impact types observed.

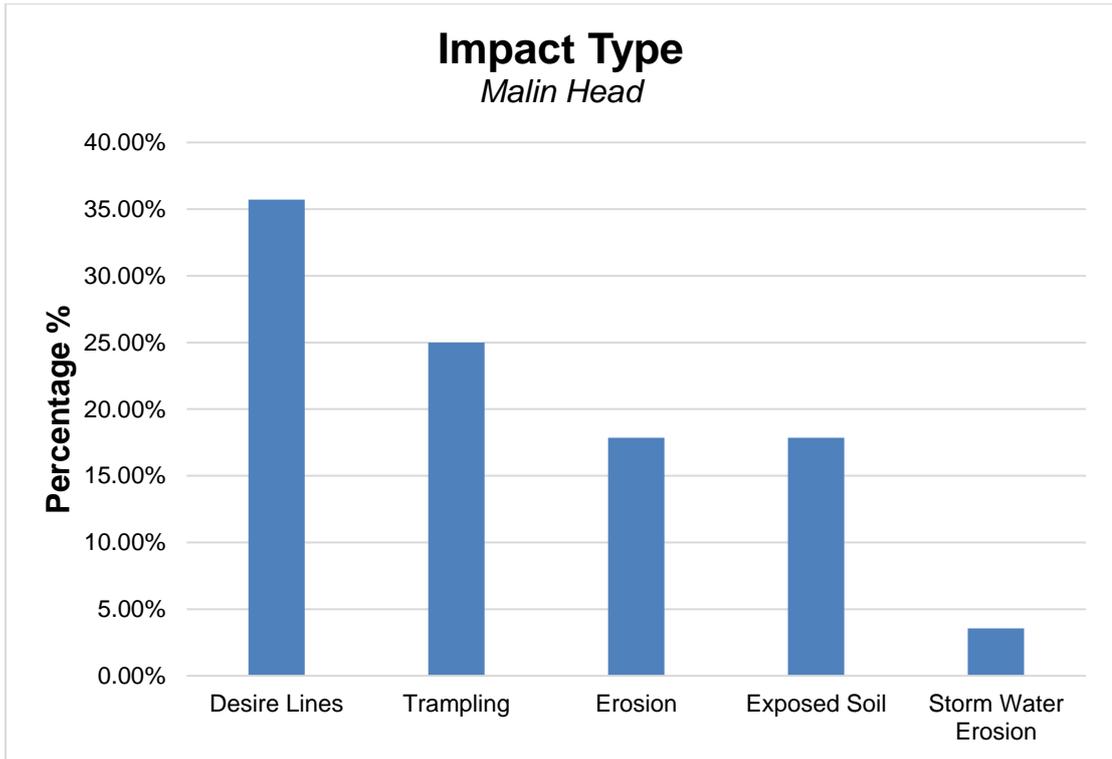


Figure 3.11 Impacts on Pathway Condition

3.2.2 Habitat Condition

Habitats were surveyed during the optimum habitat survey season i.e., April to September (Smith et al., 2011). Habitats were classified according to *A Guide to Habitats in Ireland* (Fossitt, 2000). Habitats identified on Malin Head are listed below and mapped in Figure 3.12:

- Buildings and Artificial Surfaces (BL3)
- Rocky Sea Cliffs (CS1)
- Exposed Sand, Gravel or Till (ED1)
- Exposed Siliceous Rock (ER1)
- Reed and Large Sedge Swamps (FS1)
- Dry-humid Acid Grassland (GS3)
- Wet Grassland (GS4)
- Dry Siliceous Heath (HH1)

The habitat condition assessment follows a rating scale (see Table 2.1), that has been designed specifically for this monitoring programme as a standardised, repeatable measurement for assessing habitat condition across all Fáilte Ireland sites.

There are a range of habitats present on site (see Figure 3.12). Habitat damage of varying degrees was reported on 100% of the transect walked by surveyors. The degree of damage to habitats ranged from 5% to 80% of the area damaged. 46% of samples from the transect contained localised damage while 54% of samples contained habitat with widespread damage. 26% of samples contained localised habitat degradation capable of rapid recovery, and 20% contained widespread capable of rapid recovery. 20% contained localised damage with intervention required for full recovery, and 34% of samples contained widespread damage with intervention required for full recovery. The causes of the damage were identified to be tourist movements and desire lines, storm water erosion, and livestock (sheep) overgrazing.

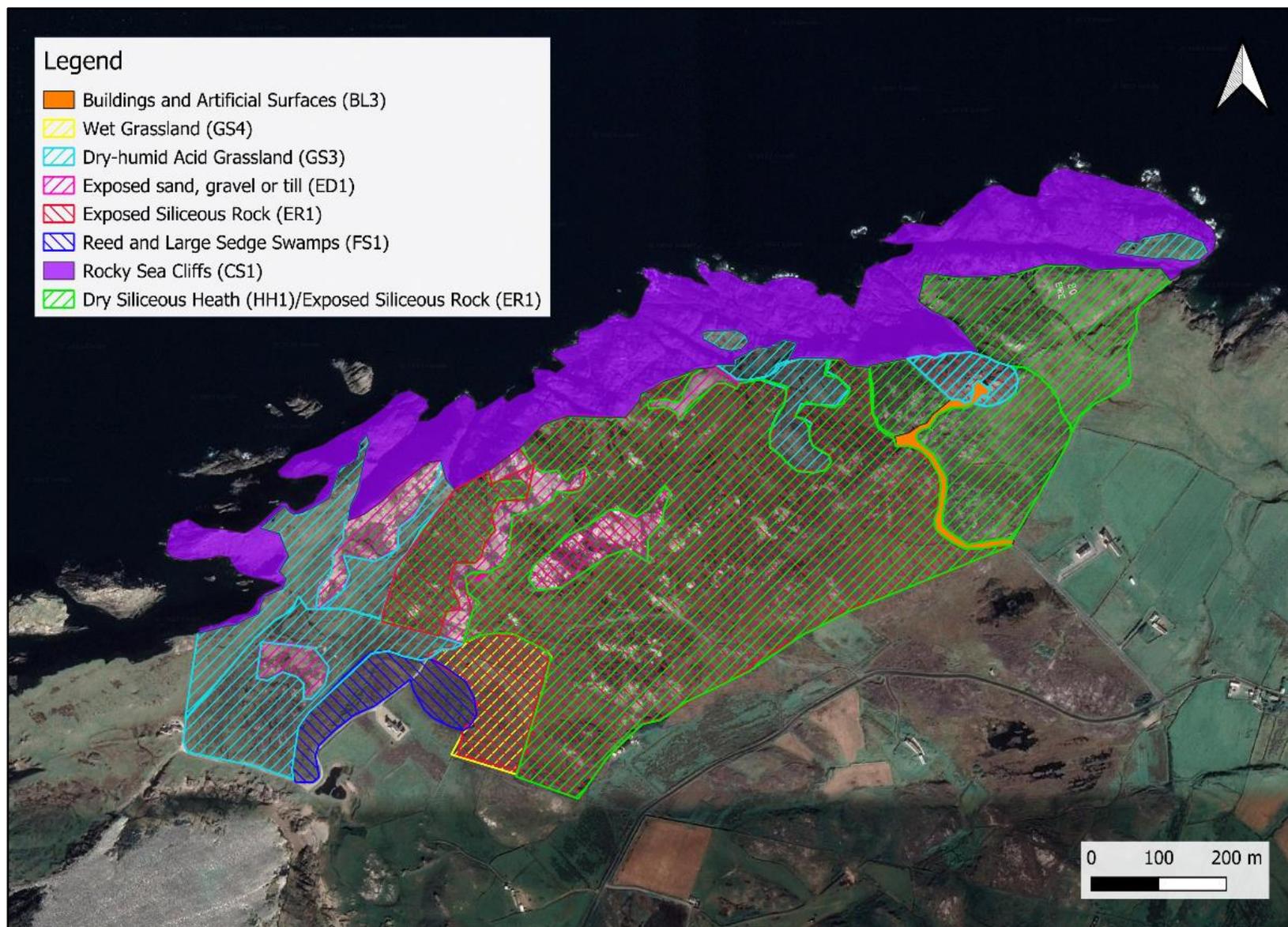


Figure 3.12 Habitat Map of Malin Head. Basemap provided by Google.

Malin Head supports a range of rare and protected habitats and species. Table 3.1 below presents the species recorded incidentally during the ecological surveys at Malin Head.

Table 3.1 Incidental Species Records

Scientific Name	Common Name
<i>Chroicocephalus ridibundus</i>	Black-headed Gull
<i>Morus bassanus</i>	Gannet
<i>Larus marinus</i>	Great Black-backed Gull
<i>Delichon urbicum</i>	House Martin
<i>Larus fuscus</i>	Lesser Black-backed Gull
<i>Corvus corax</i>	Raven
<i>Alauda arvensis</i>	Sky Lark
<i>Sturnus vulgaris</i>	Starling

3.2.3 Ecological Constraints

As previously discussed, there a number of European (SACs and SPAs) and Nationally (pNHAs) designated sites within or adjacent to Malin Head. Information on these sites was obtained from the NPWS website and their respective Natura 2000 Standard Data Forms. These sites are described in Table 3.2 below.

Table 3.2 Designated sites within 2 km of Malin Head site

Site Name [Site Code]	Qualifying Interests	Distance (km) from Site	Pressures and Threats (those related to tourism are in bold)
European Designated Sites			
North Inishowen Coast SAC [002012]	<ul style="list-style-type: none"> 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)*1 [2130] Machairs (* in Ireland) [21A0] European dry heaths [4030] 	Within site boundary	<ul style="list-style-type: none"> Abandonment of pastoral systems, lack of grazing Removal of beach materials Fishing harbours Outdoor sports and leisure activities, recreational activities Interpretative centres Non-intensive cattle grazing

¹ Asterisk (*) denotes priority Annex I habitats, those which are in danger of disappearing within the EU territory.

	<ul style="list-style-type: none"> Narrow-mouthed Whorl Snail (<i>Vertigo angustior</i>) [1014] Otter (<i>Lutra lutra</i>) [1355] 		
Malin Head SPA [004146]	<ul style="list-style-type: none"> Corncrake (<i>Crex crex</i>) [A122] 	1.5 km southeast	<ul style="list-style-type: none"> Discontinuous urbanisation Grazing Cultivation Mowing/cutting of grassland
National Designated Sites			
North Inishowen Coast pNHA [002012]	<ul style="list-style-type: none"> No site description available 	Within site boundary	<ul style="list-style-type: none"> n/a

3.3 Records of Rare, Protected and Invasive Species

Records of rare, protected, and invasive species from the past ten years from Hectads C35Z and C45E were obtained the National Biodiversity Data Centre (NBDC) online database. These records are presented in Table 3.3 below.

Table 3.3 Rare, protected, and invasive species recorded from Hectad C35Z & C45E from NBDC database.

Scientific name	Common Name	Date of last record	Status*
Mammals			
<i>Tursiops truncatus</i>	Bottle-nosed Dolphin	16/06/2019	Annex II, IV HD; WA
<i>Grampus griseus</i>	Risso's Dolphin	31/08/2022	Annex IV HD; WA
Birds			
<i>Hirundo rustica</i>	Barn Swallow	01/06/2013	WA; Amber List
<i>Branta leucopsis</i>	Barnacle Goose	09/11/2013	WA; Amber List
<i>Phalacrocorax carbo</i>	Cormorant	02/03/2016	WA; Amber List
<i>Crex crex</i>	Corn Crake	23/05/2021	WA; Red List
<i>Somateria mollissima</i>	Eider	19/06/2021	Annex II, III; WA; Amber List
<i>Locustella naevia</i>	Grasshopper Warbler	01/06/2013	WA; Amber List
<i>Larus argentatus</i>	Herring Gull	23/05/2021	WA; Red List
<i>Delichon urbicum</i>	House Martin	01/06/2013	WA; Amber List
<i>Passer domesticus</i>	House Sparrow	01/06/2013	WA; Amber List
<i>Larus fuscus</i>	Lesser Black-backed Gull	11/06/2020	WA; Amber List
<i>Carduelis cannabina</i>	Linnet	01/06/2013	WA; Amber List
<i>Tachybaptus ruficollis</i>	Little Grebe	01/06/2013	WA; Amber List
<i>Anas platyrhynchos</i>	Mallard	23/05/2021	Annex II, III BD; WA
<i>Falco columbarius</i>	Merlin	01/06/2013	Annex I BD; WA
<i>Oenanthe oenanthe</i>	Wheatear	08/08/2019	WA; Amber List
<i>Haematopus ostralegus</i>	Oystercatcher	23/05/2021	WA; Amber List
<i>Falco peregrin</i>	Peregrine Falcon	01/06/2013	Annex I BD; WA
<i>Anser brachyrhynchus</i>	Pink-footed Goose	09/11/2013	Annex II BD; WA

Scientific name	Common Name	Date of last record	Status*
Birds			
<i>Pyrhocorax pyrrhocorax</i>	Red-billed Chough	02/07/2015	Annex I BD; WA; Amber List
<i>Charadrius hiaticula</i>	Ringed Plover	19/06/2021	WA; Amber List
<i>Riparia riparia</i>	Sand Martin	01/06/2013	WA; Amber List
<i>Actitis hypoleucos</i>	Sandpiper	01/06/2013	WA; Amber List
<i>Alauda arvensis</i>	Sky Lark	01/06/2013	WA; Amber List
<i>Sturnus vulgaris</i>	Starling	19/06/2021	WA; Amber List
<i>Carduelis flavirostris</i>	Twite	01/06/2013	WA; Red List
<i>Saxicola rubetra</i>	Whinchat	01/06/2013	WA; Amber List
Reptiles & Amphibians			
<i>Zootoca vivipara</i>	Common Lizard	23/07/2020	WA
Fish and Aquatic Fauna			
<i>Cetorhinus maximus</i>	Basking Shark	05/08/2012	Threatened Species: OSPAR Convention; WA
Invasive Species			
<i>Capra hircu</i>	Feral Goat	07/05/2013	Medium Impact Invasive Species

*Abbreviations: Annex II/IV/V (non-avian species) = Habitats Directive (HD); Annex I, II, III = Birds Directive (BD); Red/Amber List = Birds of Conservation Concern in Ireland 2020-2026 (BOCCI) (Gilbert et al., 2021).

3.4 Features, Signage and Hazards

3.4.1 Features and Signage

Informative signage regarding the historic and cultural heritage of Malin Head was available by the car park and at Lloyd's Signal Tower. Signage with information on the environment and biodiversity was also available here. An example of this is displayed below in Plate 3.2. Other signage along the trails was largely directional. A map illustrating the locations of signage, features and hazards is presented in Figure 3.13. Examples of signage and features on the site are shown below in Plates 3.2-3.4.



Figure 3.13 Features and signage mapped at Malin Head. Basemap provided by Google.

There were multiple features noted at Malin Head. Lloyd's Signal Tower is located a short walk northwest of the car park, with a watchman's hut adjacent to it. In World War II, the signal tower was used as a lookout post (NMS, 2023). This is exhibited in plate 3.3. The Éire 80 sign is located 150m northwest of the signal tower. A wooden cross is located off the trails to the west of the car park and looks out over the Atlantic Ocean. Many visitors have left coins and other items at the cross as offerings, as presented in plate 3.3. Pólifreann – also known as 'Hell's Hole' – is an underground cavern close to the trails to the west. There are toilet facilities in the car park at Malin Head.



Plate 3.2 Informative signage on cultural heritage and the environment.



Plate 3.3 Lloyd's Signal Tower (L) and wooden cross (R).

3.4.2 Hazards

A broken fence was recorded at Malin Head and is displayed in Plate 3.4. This is a hazard, particularly given its proximity to rocks and the ocean. As discussed in section 3.2.1, approximately half of the pathways assessed were uneven, which is also a hazard for visitors.



Plate 3.4 Broken fence (L) and an eroded and uneven path (R).

3.5 Comparison with Previous Survey Results

Visitor Numbers

The 2023 survey recorded 225 visitor groups. This increased from 41 visitor groups recorded in 2022. Although this is a significant increase, it should be noted that the surveys were carried out over a single day, and there could be a number of variables leading to this change such as weather and the easing effects of the Covid-19 pandemic on travel, sporting or music events which could have led to this change.

Dwell Time

The average dwell time recorded in 2023 was 35 minutes, whereas the average dwell time observed in 2022 was 38 minutes. This is a decrease of 8%. However, the reasons above could have affected the result.

Prevalence of Group Type

'Couples' made up the highest proportion of group types in both 2022 and 2023. The 'individual adult' group type was the second largest proportion in 2023, whereas in 2022 it was the 'Family' and 'Small Adult Group' types. 'Family' was the third largest proportion in 2023, while in 2022 it was 'Mixed Small Group'. The results are presented in Table 3.4.

Table 3.4 Prevalence of Group Type 2022 vs 2023

Group Type	2022	2023
Couple	40%	40%
Family	17%	22.5%
Individual Adult	2%	26%
Elderly Couple	7%	6%
Small Adult Group	17%	3%
Mixed Small Group	15%	2%
Elderly Group	2%	0.5%

Prevalence of Transport Type

Cars were the most popular type of transport in 2023 and 2022. In 2022, motorbike was the second most popular mode of transport. In 2023 the second most popular category was bicycle. Motorbike as the third most popular mode of transport in 2023, while in 2022 it was walking. Travel by walking, camper and bus/coach in order were the least prevalent modes of transport in 2023. The 2022 survey did not observe any other modes. The results are presented in Table 3.5.

Table 3.5 Prevalence of Transport Type 2022 vs 2023

Transport Type	2022	2023
Car	93%	82%
Walking	2%	1.5%
Motorbike	5%	4%
Bicycle	0%	9%
Camper	0%	3%
Bus/ Coach	0%	.5%

Read Available Signage

The 2023 survey found an increase in the proportion of visitor groups observed not reading the signage at 93%, when compared to 2022 at 46%. However, it should be considered that the survey conducted in 2022 included an 'unknown' variable in their graph.

Activity Levels

Low activity levels make up 87% of the activity levels observed in 2023 and 99% in 2022. Subsequently moderate or medium activity levels made up 9% of the activity levels observed in 2023 and 1% in 2022. High activity levels made up 4% of the activity levels observed in 2023, no high activity levels were observed in 2022. However, it should be taken into account that as two different teams conducted the surveys in each year there is potential for discrepancies in the assigning of activity levels observed.

Activities Undertaken Other than Walking

The majority of visitor groups did not undertake activities other than walking. 73% of visitor groups observed did not undertake activities other than walking in 2023 (i.e. they only walked), while only 5% did the same in 2022. This is a significant increase of groups only walking at the site. Activities other than walking included resting, picnicking, sightseeing, photographing, picnicking, and watching nature.

Activity Type

The 2023 and 2022 surveys noted similar activity types at varying proportions. However, the 2023 Survey included activities which were not recorded in 2022, these include 'vehicular movement on roads and parking areas', 'watching nature in hedges, woods, streams, pools and intertidal areas', 'climbing on walls, loose stones, sand, soil etc.', 'any movement leaving a trail through leafy vegetation', 'scrambling on steep or loose slopes', 'walking through wet/ muddy soil', and 'deliberate building or moving or knocking site materials - parts of monuments, walls, stones, sand etc'. The 2022 survey noted 'other' as an activity type which was not recorded in the 2023 survey.

Impact Severity Level

Impact severity levels relates to the impact and severity of the activities undertaken at the site. 89% of the groups observed had low level impact severity on the site in 2023 and 51% in 2022. In 2023, 11% had a medium level of impact severity and in 2022 49%. No severe impact levels of severity were observed in 2022 and 2023.

Impact Type

The 2023 survey noted various impact types including desire lines, trampling, erosion, exposed soil, and storm water erosion. The 2022 survey also noted desire lines and trampling, along with 'compaction of substrate', 'damage to natural features', 'exposure of substrate', and 'loosening of substrate'. However, it should be taken into account that as two different teams conducted the surveys in each year there is potential for discrepancies in the assigning of impact types observed.

4.0 RECOMMENDATIONS

Based on the information discussed and displayed above, the following recommendations are made:

- There is limited parking on this site, leading to visitors parking along the roads leading to the car park. The development of a traffic management plan should be considered to ensure safety and accessibility at the site.
- Increasing active and public transport routes to the site would reduce the proportion of private car transport to the site. This would reduce traffic congestion and its associated impacts, such as visual impact and noise, and would improve the visitor amenity at the site. Active travel could be promoted through the development of a segregated pedestrian and/or cycle route.
- The 2021, 2022, and 2023 surveys show that couples made up the largest proportion of visitor groups to Malin Head. A shuttle bus service from Malin Town, the closest settlement, should be considered. As shuttle buses are more likely to be used by couples rather than families who tend to visit tourism destinations with more equipment, the feasibility of a shuttle bus service would be a viable intervention.
- The local bus route serving Malin Head and/or a shuttle bus should be promoted as an alternative mode of transport to visit Malin Head.
- Sections of the gravel path have been damaged by rain. These should be repaired (See Plate 3.4).
- The broken fence at Póilfreann should be repaired.
- The formalisation of the trail west of Póilfreann should be considered to address path widening and erosion. This should include areas adjacent to the paths which are popular for taking photographs.
- Additional informational and instructional signage relating to the natural and built heritage should be provided at locations around the site. The instructional signage should be teleological, presenting both the instruction and justification for the instruction. Signage regarding the need to keep dogs leashed to prevent disturbance to Corncrakes and other ground nesting birds is needed.
- Appropriate land management is recommended to promote sustainable farming practices and reduce overgrazing. This would lead to improved habitat quality and resilience. Any recommendation related to land management should be considerate of the EU Corncrake Life Project.

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Appendix I

Activities		
Category 1 Low Level		
Walking, running or cycling on paths, marked trails or hard surfaces		LA 1
Walking, running, cycling or playing in mown grass, managed grassland or level sand		LA 2
Sitting on benches, walls, mown grass, sand		LA 3
Swimming, sailing, surfing, kayaking in water		LA 4
Resting, reading, looking, picnicking, sightseeing, painting, photographing		LA 5
Vehicular movement on roads and parking areas		LA 6
Watching nature in hedges, woods, streams, pools and intertidal areas		LA 7
Category 2 Medium Level		
Powered movement through water		MA 1
Any movement leaving an existing trail or marked path		MA 2
Any movement leaving a trail through leafy vegetation		MA 3
Any movement leaving a trail through woody vegetation		MA 4
Climbing on walls, loose stones, sand, soil etc.		MA 5
Fishing		MA 6
Category 3 High Level		
Walking through wet/muddy soil		HA 1
Scrambling on steep or loose slopes		HA 2
Off road vehicular movement		HA 3
Disturbance of wildlife		HA 4
Deliberate building or moving or knocking site materials - parts of monuments, walls, stones, sand etc.		HA 5
Picking herbaceous vegetation		HA 6

Impacts		
Category 1 Low Impact		
No identifiable effect		LIE 1
Desire lines or trails visible on grass and leafy vegetation		LIE 2
Temporary disturbance (including chasing and feeding) of insects, fish, amphibian, reptiles, insects, birds and mammals		LIE 3
Temporary change of character - due to the appearance or nature of activities (noise, crowds, etc.)		LIE 4
General/light littering		LIE 5
Category 2 Medium Impact		
Desire lines or tracks visible outside of existing trail or marked path		MIE 1
Trampling of herbaceous vegetation		MIE 2
Damage to woody vegetation		MIE 3
Incidentally moving or knocking site materials - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.		MIE 4
Addition/alteration of site features, transient emissions, noise		MIE 5
Transient disturbance, emissions, noise		MIE 6
Disturbance of wildlife		MIE 7
Category 3 Severe Impact		
Direct interference with site material - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.		SIE 1
Removal of material - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.		SIE 2
Vandalism or graffiti		SIE 3
Destruction of structures, vegetation or fauna		SIE 4
Heavy littering or dumping quantities of waste		SIE 5
Burning materials or lighting a fire		SIE 6
Injuring, killing or taking wildlife		SIE 7

Appendix II

Habitat Condition Assessment Methodology

A rating scale has been designed for this monitoring programme as a standardised, repeatable measurement for assessing habitat condition across all sites². For the purposes of this monitoring programme, habitat condition is assessed at every site by the surveyor examining four core criteria:

1. The extent to which habitat degradation (due to human activity), if any, is observed;
2. If habitat degradation is observed, the degree to which the impact is localised or widespread;
3. The potential ability for the habitat to recover (related to scale of degradation); and,
4. The requirement for intervention (related to the degree of the previous 3 elements).

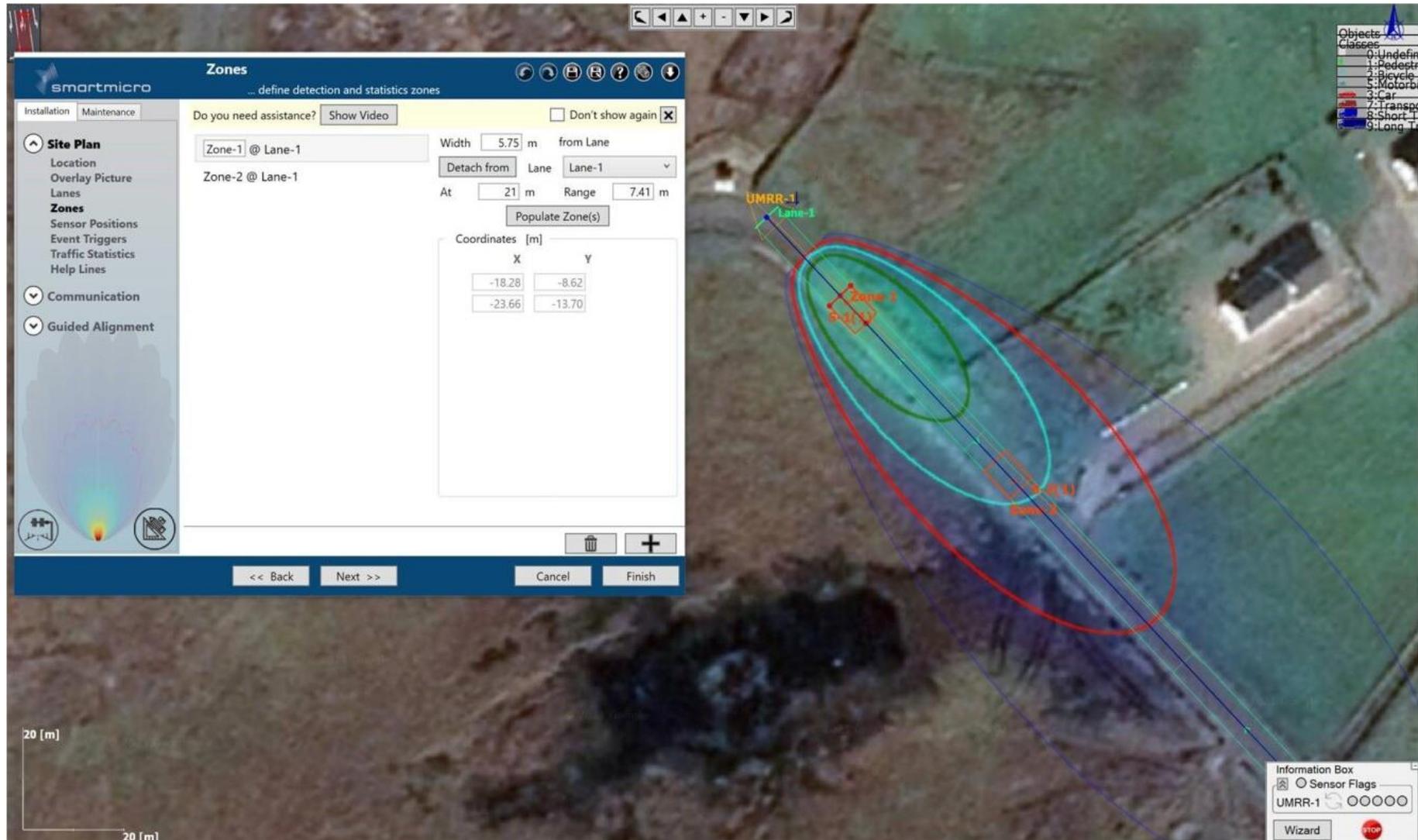
For these assessments the term 'degradation' is taken to mean that any change that reduces the long-term viability of habitats and their qualifying interest (i.e. flora and fauna). Degradation can include readily visible evidence of factors such as surface erosion or compaction, vegetation loss, crowd disturbance (noise), disturbance by pets, littering, burning or pollution. Based on these four criteria, each site is walked along transects established by the principal pathways that are used for visitor access and movement through each site. At 100 metre intervals along the selected pathways, an assessment of habitat condition is made, using an established rating scale of 1 to 5 with 1 being no impact and 5 being high impact. Each rating is then translated into a condition assessment, as displayed in Table 1 below.

These ratings are gathered for each site and are then grouped; from which the mode is taken (i.e., the rating that occurs most frequently). This is then recorded and reported as the resultant overall rating of the assessed habitat condition for each site.

Scale	Condition
1	No evidence of habitat degradation
2	Localised habitat degradation. Habitat capable of rapid recovery.
3	Widespread habitat degradation. Habitat capable of rapid recovery.
4	Localised habitat degradation. Intervention required for full recovery.
5	Widespread habitat degradation. Intervention required for full recovery.

² Note: Where possible, the same surveyor is used across multiple sites, but in some instances, different surveyors survey different sites. This can lead to a human variation in the assigning of the rating scale for impact. However, there will be sufficient repetition of the data through the several years of the monitoring programme to account for any variations in human interpretation on this scale.

Appendix III



Vehicle Count

total vehicles per hour that passed a given point on the roadway

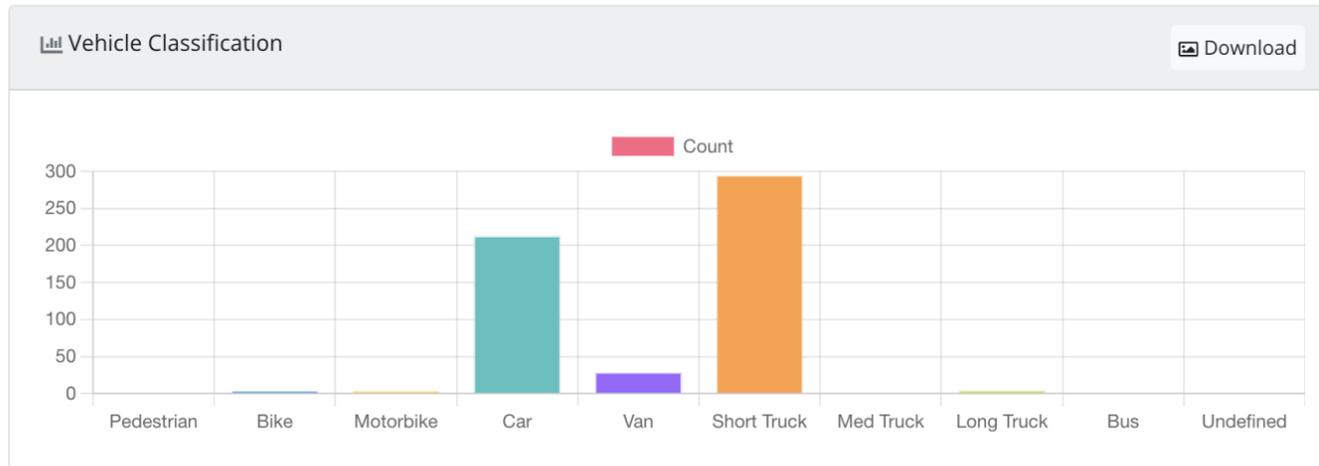
Total Pedestrians 0 | Bikes 4 | Vehicles 546



00:00 - 06:00				06:00 - 12:00				12:00 - 18:00				18:00 - 24:00			
Time	Pedestrian	Bike	Vehicle												
0:00 - 1:00	0	0	0	6:00 - 7:00	0	0	0	12:00 - 13:00	0	1	72	18:00 - 19:00	0	0	27
1:00 - 2:00	0	0	0	7:00 - 8:00	0	0	0	13:00 - 14:00	0	1	75	19:00 - 20:00	0	0	0
2:00 - 3:00	0	0	0	8:00 - 9:00	0	0	7	14:00 - 15:00	0	0	70	20:00 - 21:00	0	0	0
3:00 - 4:00	0	0	0	9:00 - 10:00	0	1	28	15:00 - 16:00	0	0	66	21:00 - 22:00	0	0	0
4:00 - 5:00	0	0	0	10:00 - 11:00	0	1	35	16:00 - 17:00	0	0	62	22:00 - 23:00	0	0	0
5:00 - 6:00	0	0	0	11:00 - 12:00	0	0	51	17:00 - 18:00	0	0	53	23:00 - 24:00	0	0	0

Vehicle Classification

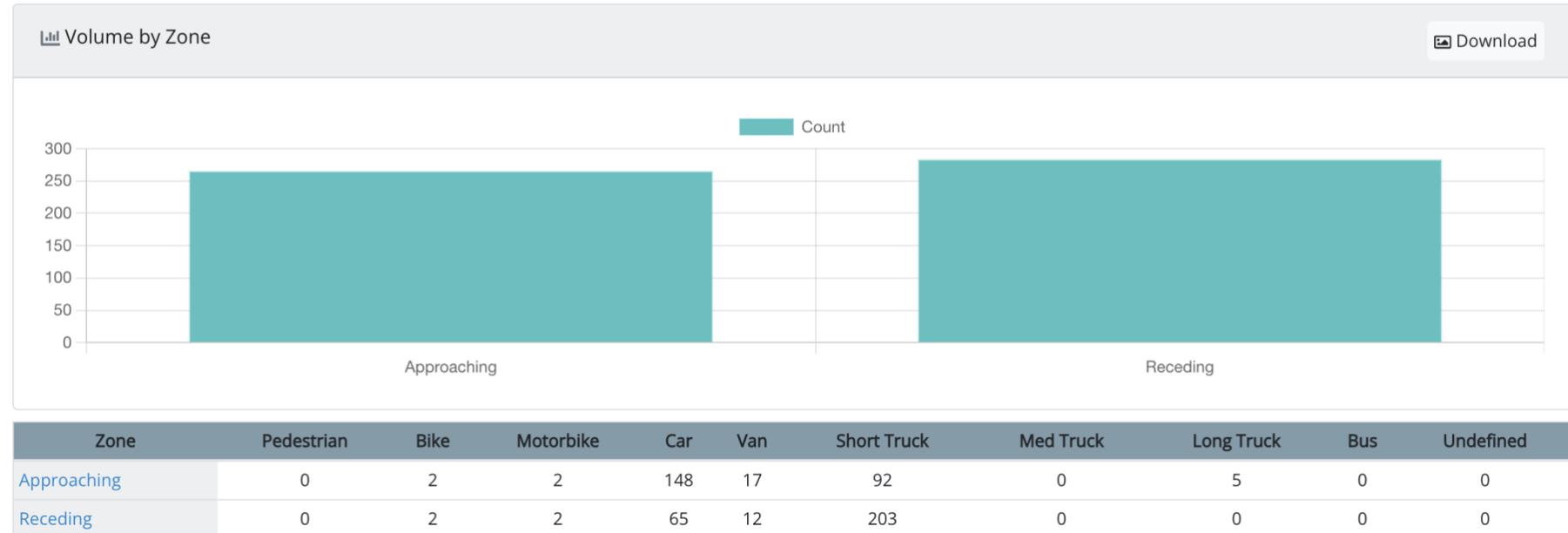
total counts by type of vehicle



Vehicle type	Count
Pedestrian	0
Bike	4
Motorbike	4
Car	213
Van	29
Short Truck	295
Med Truck	0
Long Truck	5
Bus	0
Undefined	0

Volume

number of vehicles per hour specified by Class that passed through the Zone



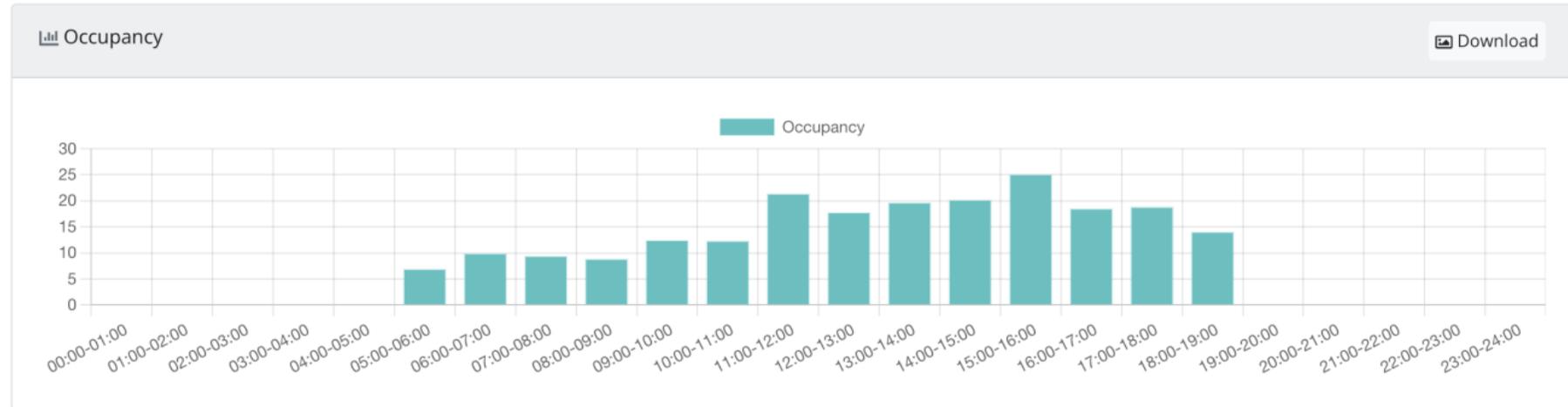
Speed

average speed in km/h

Date	Time	Speed [km/h]
11-08-2023	8:00 - 9:00	48.50
11-08-2023	9:00 - 10:00	29.54
11-08-2023	10:00 - 11:00	36.45
11-08-2023	11:00 - 12:00	34.87
11-08-2023	12:00 - 13:00	31.23
11-08-2023	13:00 - 14:00	33.32
11-08-2023	14:00 - 15:00	40.60
11-08-2023	15:00 - 16:00	32.36
11-08-2023	16:00 - 17:00	39.44
11-08-2023	17:00 - 18:00	34.25
11-08-2023	18:00 - 19:00	36.93

Occupancy

relative zone occupancy in [%]



Date	Time	Occupancy [%]
11-08-2023	5:00 - 6:00	7.00
11-08-2023	6:00 - 7:00	10.00
11-08-2023	7:00 - 8:00	9.50
11-08-2023	8:00 - 9:00	8.94
11-08-2023	9:00 - 10:00	12.54
11-08-2023	10:00 - 11:00	12.40
11-08-2023	11:00 - 12:00	21.47
11-08-2023	12:00 - 13:00	17.87
11-08-2023	13:00 - 14:00	19.76
11-08-2023	14:00 - 15:00	20.28
11-08-2023	15:00 - 16:00	25.16
11-08-2023	16:00 - 17:00	18.60
11-08-2023	17:00 - 18:00	18.92



**Fáilte
Ireland**

Turasóireacht Náisiúnta
An tÚdara Eorbartha
National Tourism
Development Authority