NATIONAL TOURISM MONITORING PROGRAMME 2021-2025

ANNUAL RESULTS FOR 2021

DERRIGIMLAGH BOG

for: **Fáilte Ireland**

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October 2022

Document Control

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Status of this version	Final	

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Derrigimlagh Bog – Interesting Finds

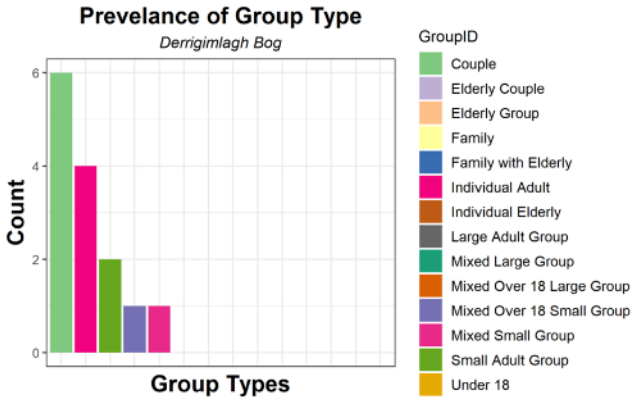
ECOLOGICAL HIGHLIGHTS

Derrigimlagh Bog is covered by a majority of cutover bog, which was previously cut for industrial use and still cut, but on a much smaller scale.

The bog itself has a low species diversity and requires management action to increase the habitat quality and species diversity present.

VISITOR NUMBERS AND DWELL TIME

- 31 people visited the site over 8 hours
- Average dwell time of 83 minutes



KEY RECOMMENDATIONS

- There are opportunities present at the site to engage in long term habitat restoration to increase floral diversity and use the site as an exemplar location to showcase our cultural heritage related to turf – while also demonstrating biodiversity enhancement as we transition away from turf cutting processes.
- Seasonal attention is required to wear and tear at junctions between paved and board-walked areas and also along transitions to areas of bog vegetation. Consideration should be given to localised temporary sheep exclusion from the most affected areas to allow trail recovery.

VISITOR INTERACTION & MANAGEMENT

- Visitor interactions on site well controlled with strong management practices in place.
- All visitors followed pathways which were designated for use and did not leave these paths.
- Most of the visitors to the site stayed for at least 83 minutes – given the linear and long nature of the boardwalk system.
- Majority of visitors to the site read signage that was available.

Highlights:

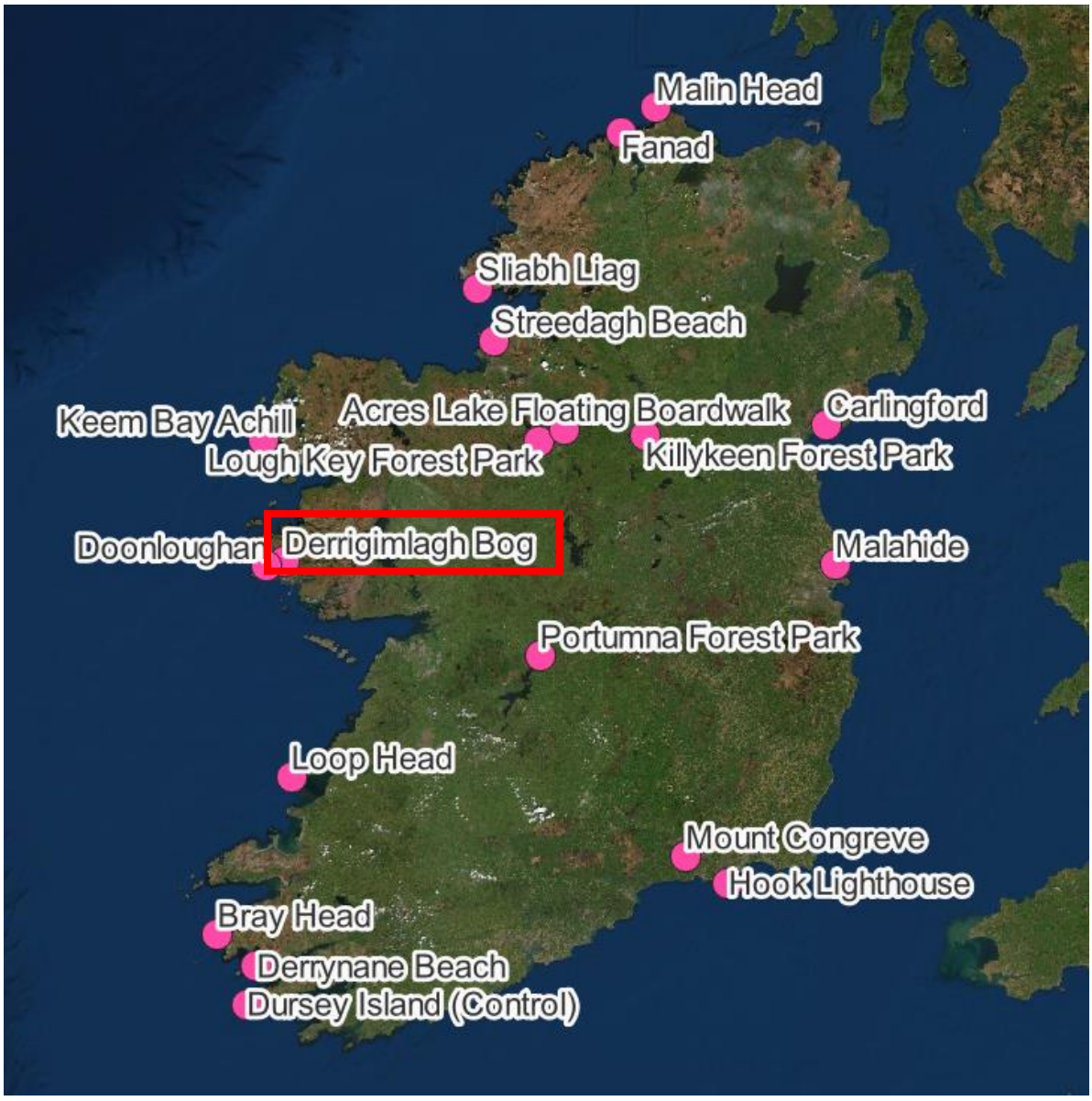
- Well maintained boardwalk and redefined use for previous roadways through the bog.
- Long site dwell time of at least 83 minutes.
- Large amounts of signage and interactive features relating to sites natural history.

1 Derrigimlagh Bog

1.1 Purpose & Outputs of the Programme

Building on the success of the Wild Atlantic Way (WAW) environmental monitoring programme which ran from 2015-2019 – Fáilte Ireland has decided to expand the programme to a national level. The programme will monitor 19 individual sites located in all of Fáilte Irelands regional areas; The Wild Atlantic Way, Irelands Hidden Heartlands, Irelands Ancient East and Dublin. The programme will run for 5 years from 2021-2025.

The sites that are included in the programme vary in type from inland forest parks, to coastal sites, to privately owned attractions and diverse urban locations - can be seen below.



The purpose of the programme is as follows:

- To gain more insight from an environmental perspective as to what is happening at a variety of sites where we encourage visitors to frequent,
- To gather information (visitor behaviour, movement, path and trail conditions, surveys for birds, flora etc) for each site over the course of 5 years,
- To understand if there are observable trends and/or observable variations amongst site types over a 5-year period,
- To note good & bad practice at sites in order to;

- Make recommendations where appropriate for site management which is intended will have sustainable benefits for the site, the visitor and the natural environment.

The Wild Atlantic Way Environmental Monitoring Programme allowed us to monitor the behaviour & movement of over 26,000 visitors, identify where there were stresses on the environment or potential future risks as well as good and bad practice.

This culminated in our ability to make useful recommendations to site owners and managers and ultimately to development a practical set of Guidelines for Visitor management (from Planning thorough to Site Operation).

It is hoped that we can build on the learnings of this previous programme and by engaging with site managers, to knowledge share, can enhance the information that we gather for each site chosen nationally for this new programme.

The key areas of focus within the data being gathered is to answer the following questions:

- How do the learning outcomes from the WAW monitoring compare when using repeat measures at fixed locations over a long period? Hence, what are the predictors of impact occurrence and severity?
- Following on from the WAW monitoring data – with the refined methods we aim to understand what activities cause which impact; and what are the factors which influence these activity choices in visitors?
- Understanding visitor movement patterns with respect to ranging behaviours – i.e., is there a distance threshold where impacts are less severe or negligible?
- Undertake pathway condition assessments to understand the relative sensitivities or tolerances of path types to visitor movements – taking note of habitat type and visitor numbers/load capacity.

These questions will be answered upon completion of the full suite of surveys and data collected annually over the course of the monitoring programme. However, each year will have annual interim reports to enable emerging findings and management recommendation to be identified and shared with the relevant stakeholders to support progressive management practices.

1.2 Methods & Surveys

The following surveys were undertaken at Derrigimlagh Bog:

1.2.1 Visitor Characterisation Survey

Visitor characterisation surveys were undertaken at each of the monitoring sites during the weekend period between June-August. The survey at Derrigimlagh Bog was undertaken on the 17th of July 2021, with max temperatures reaching 23.2° C, no rainfall and low levels of wind on the day[1].These surveys followed an 8-hour time period recording samples of visitor behaviour of an many visitors on site as possible. Visitor movement patterns, demographic data and activities undertaken were recorded for all sampled visitors. Where activities had associated impacts, these were also recorded and the relevant severity was recorded using the same coding system as with the WAW monitoring (see Appendix I for details). It is important to note that the visitor characterisation surveys are indiscriminate between visitors and local amenity use.

1.2.2 Ecological & Path Assessments

In addition to the visitor movement and behavioural records an ecological assessment and path network assessment was undertaken at each site. This consisted of mapping all tracks and trails – with records of hazards, notable damage etc. In addition to this, all habitats were mapped according to the Fossitt Habitat coding system while information on bird populations was gathered from National Biodiversity Centre Data.

[1] Weather data gathered from: https://www.met.ie/climate/available-data/historical-data

1.2.3 Other Surveys

Additional sample surveys were undertaken at Derrigimlagh Bog to identify the species presence of mammals. This information can inform potential management actions related to amenity services such as lighting which could conflict with sensitive species on site.

1.3 Site Description of Derrigimlagh Bog

The Derrigimlagh Discovery Point is a 5km signposted looped walk through the boglands. The site also contains important historic commemoration sites, namely the transmission of the first commercial transatlantic message in 1907 and also the site of the landing of first non-stop transatlantic flight in 1919.

The trail is 5km long following a roadway and gravel tracks with small sections of boardwalk through sensitive area encompassing habitats of bogs such as dystrophic lakes (Figure 5.1) and cutover bog. This walking loop borders and is part of both the Connemara Bog Complex SAC and SPA.

Figure 1.1 Derrigimlagh Bog

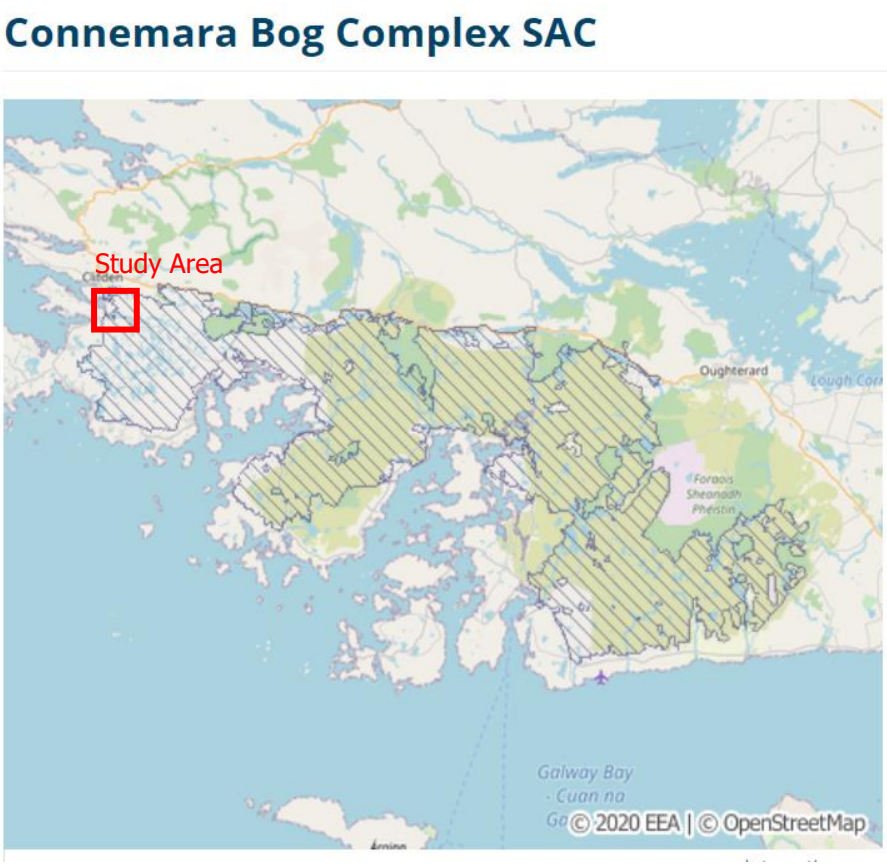


Figure 1.2 Study Area within Connemara Bog Complex SAC

1.4 Pathways and Features Condition Results

1.4.1 Pathway Condition

The path is a mixture of both hard infrastructure and managed walkways which are consistent in size, respectively all the way through the path. The pathway is composed of a mixture of hard and soft infrastructure pathways which were previously used for transportation of peat from the bog, and comparatively new wooden boardwalk aimed to enhance the tourism aspect of the area.

As the pathways are hard surfaced, there is no evidence of erosion along the pathways, as there are little opportunities for erosion to occur on hard surfaced pathways. However, there are areas of wear and tear at junctions between paved and board-walked areas and also along transitions to areas of bog vegetation.

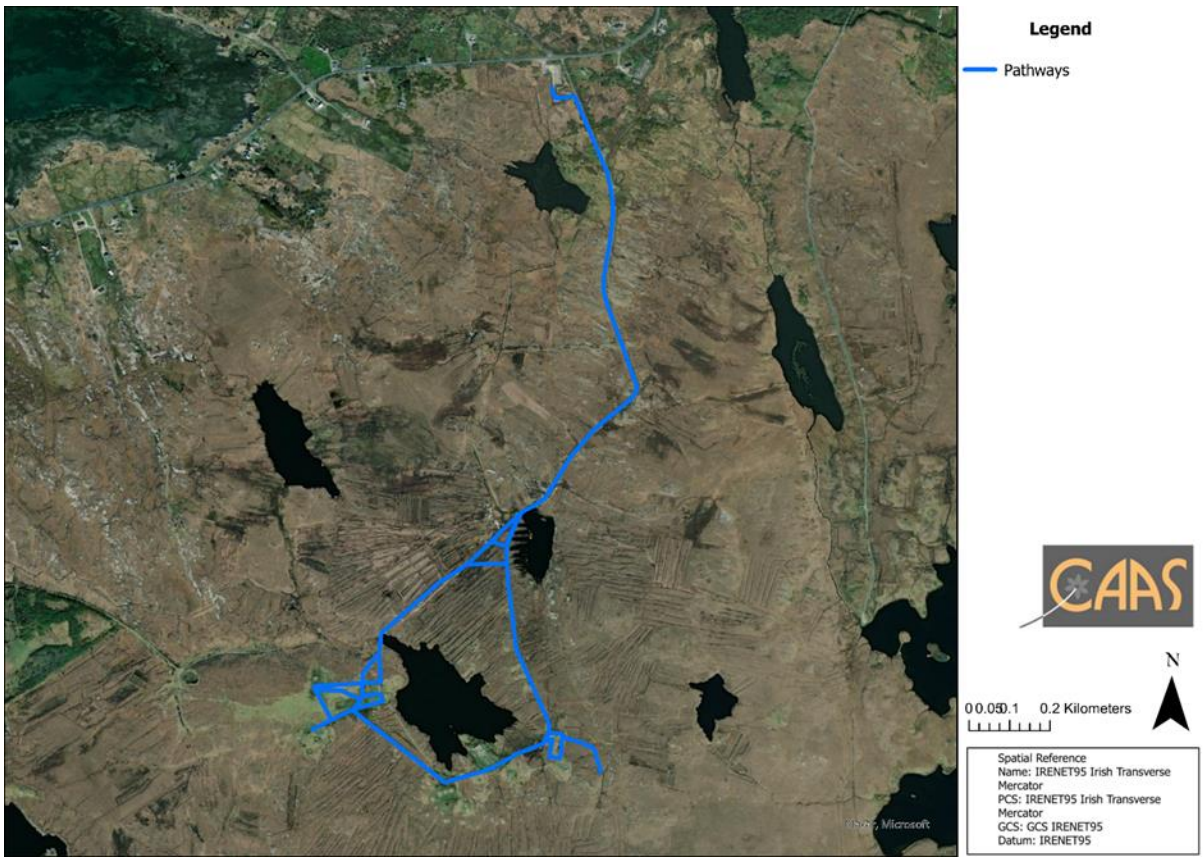


Figure 1.3 Pathways identified at Derrigimlagh Bog

Figure 1.4 Boardwalk pathway at Derrigimlagh Bog

1.4.2 Features Condition

The site has a large number of informational signs, some of which are interactive (Figure 1.6). These informational aspects of the site are placed along the designated boardwalk mainly relate to the heritage and cultural history of the site. There is a lack of signage related to the ecology of the area, especially the importance of peatlands.

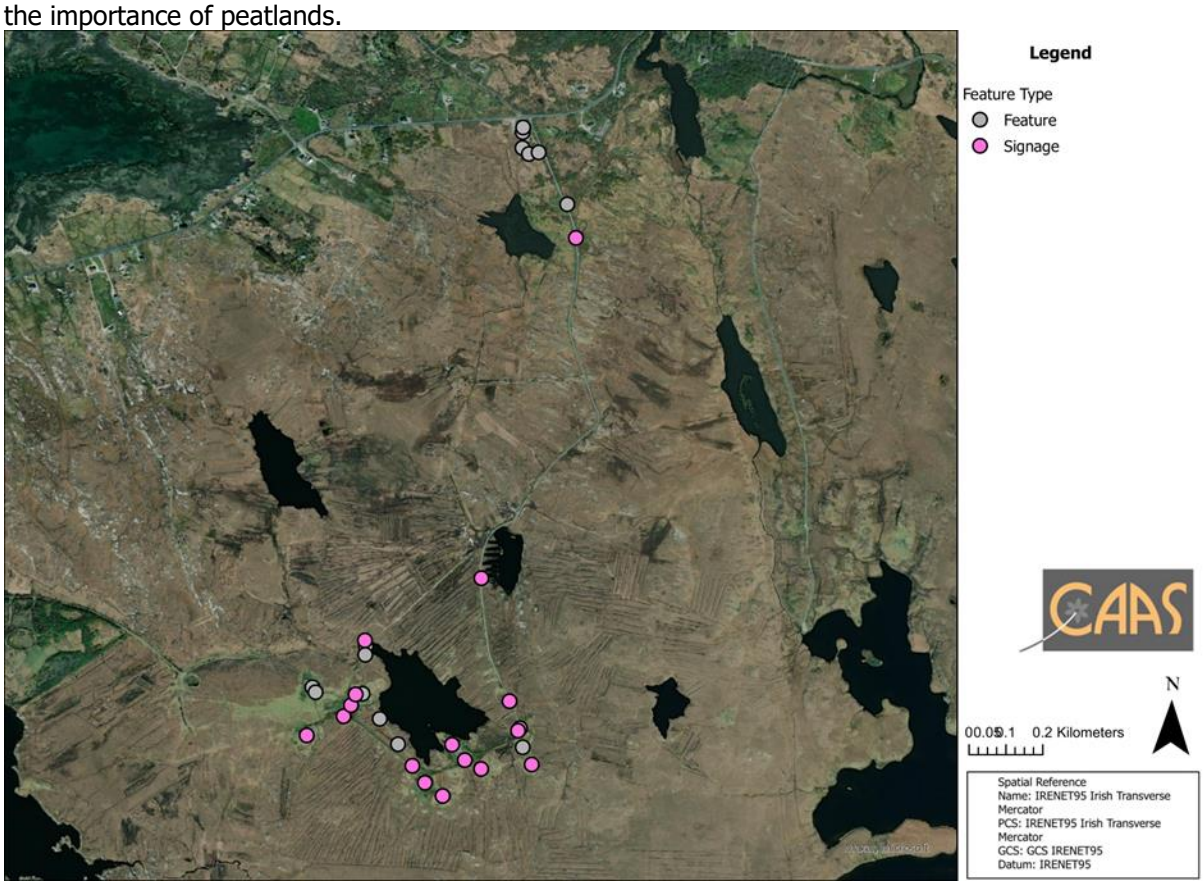


Figure 1.5 Features recorded at Derrigimlagh Bog

Figure 1.6 Features at Derrigimlagh Bog

1.4.3 Hazards

The hazard mapping identified no significant hazards at Derrigimlagh Bog. There may be future localised issues due to wear and tear at junctions between paved and board-walked areas and also along transitions to areas of bog vegetation.

1.5 Visitor Characterisation Survey

The visitor monitoring surveys resulted in a total of 31 visitors (which represent 14 group observations). The site is most popular amongst the Couple group with the dominant mode of transport being car. The average dwell time for the site was 83 minutes; with the following activities undertaken during the survey (listed in order of occurrence rate):

Activity Type
Sitting
Causing damage
Bog cutting
Cycling
Jogging
Sprinting

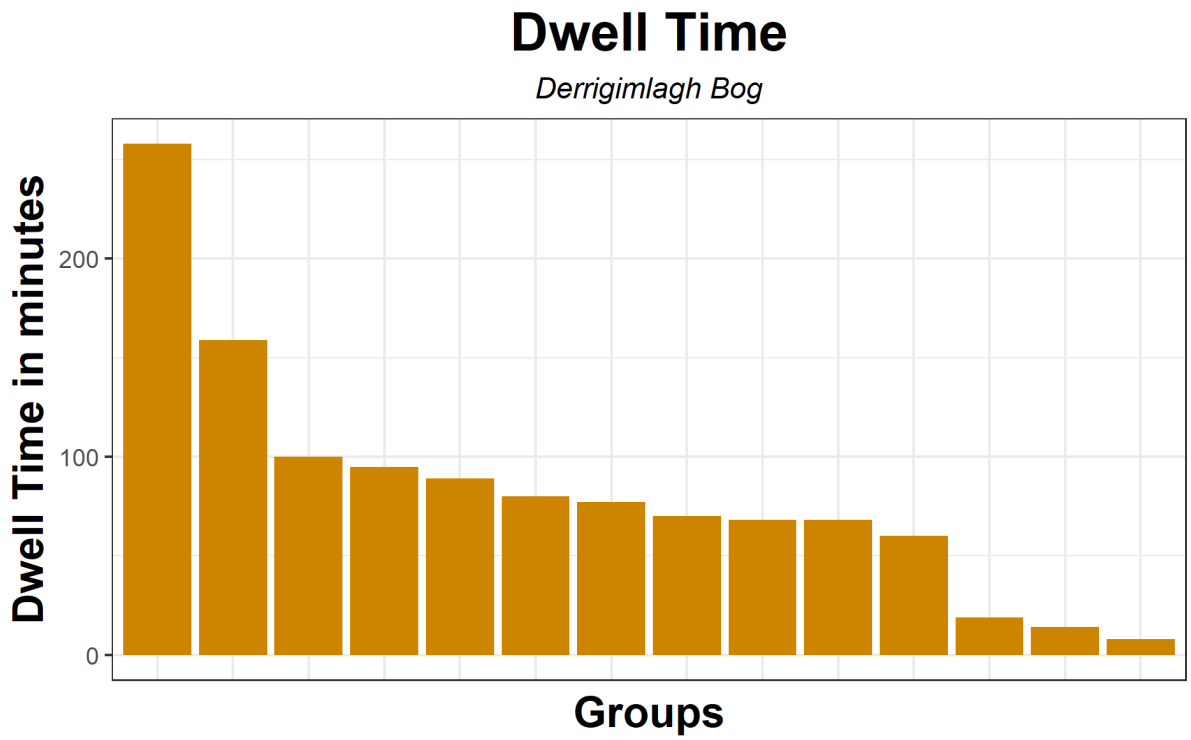


Figure 1.7 Duration of Time Spent at Derrigimlagh Bog

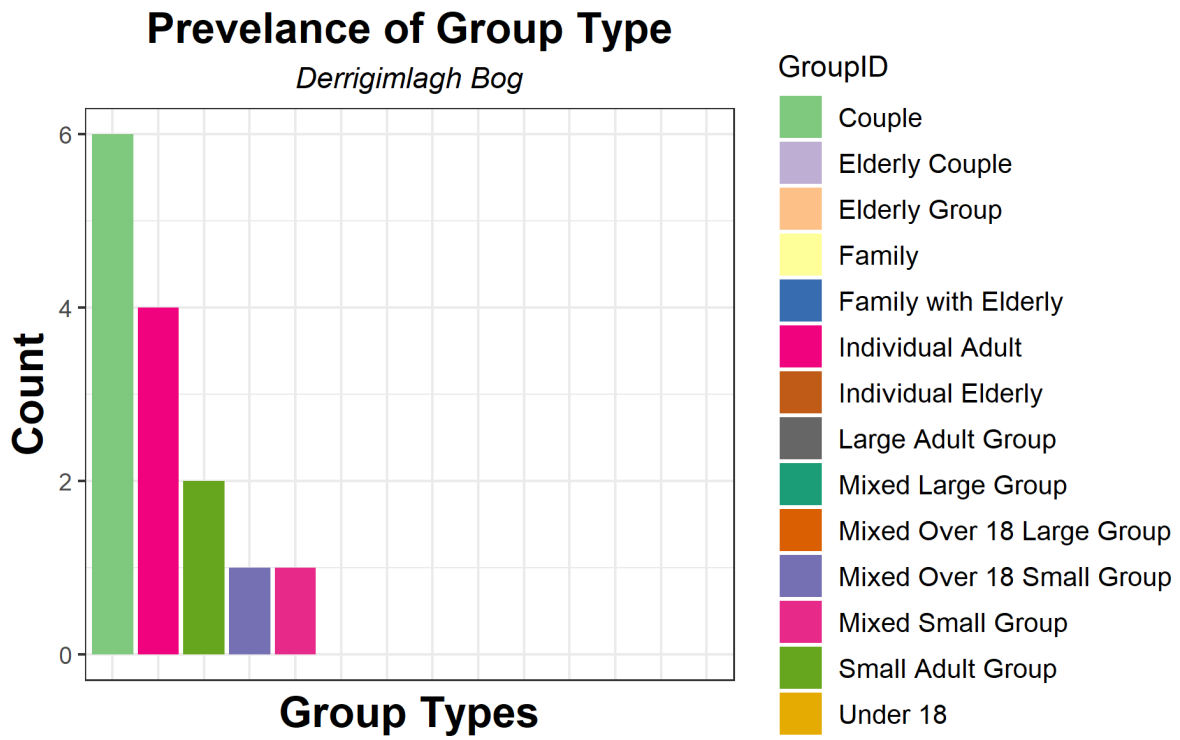


Figure 1.8 Groups of visitors that visited Derrigimlagh Bog

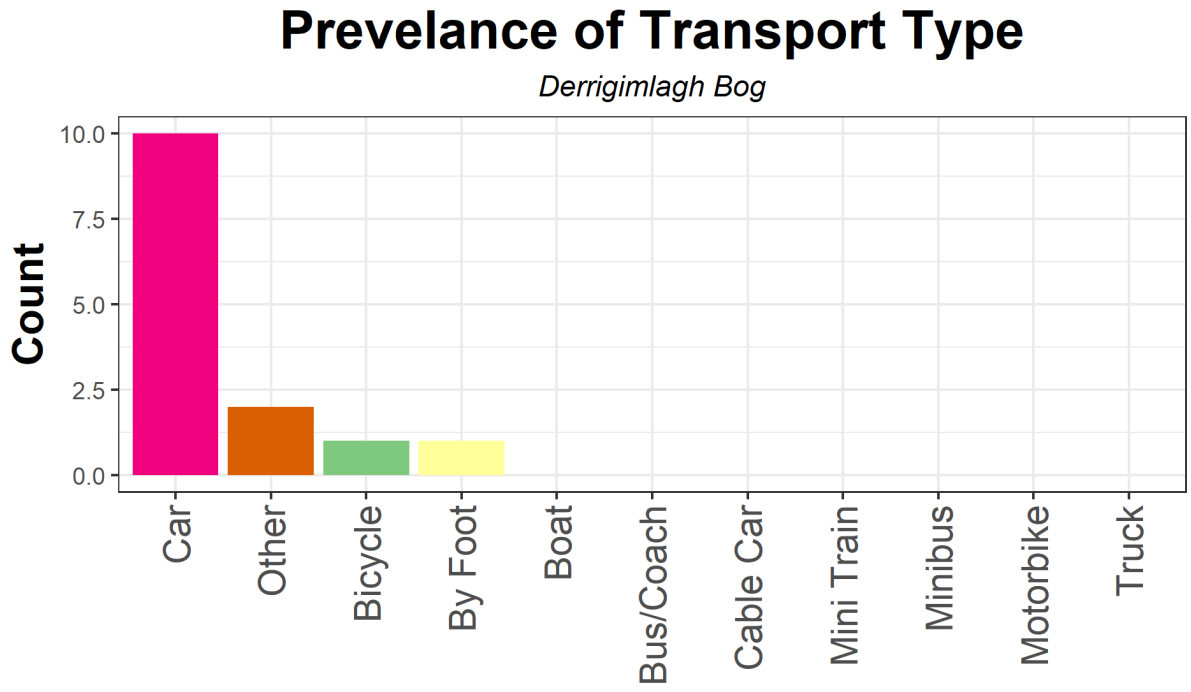


Figure 1.9 Mode of transport used to visit Derrigimlagh Bog

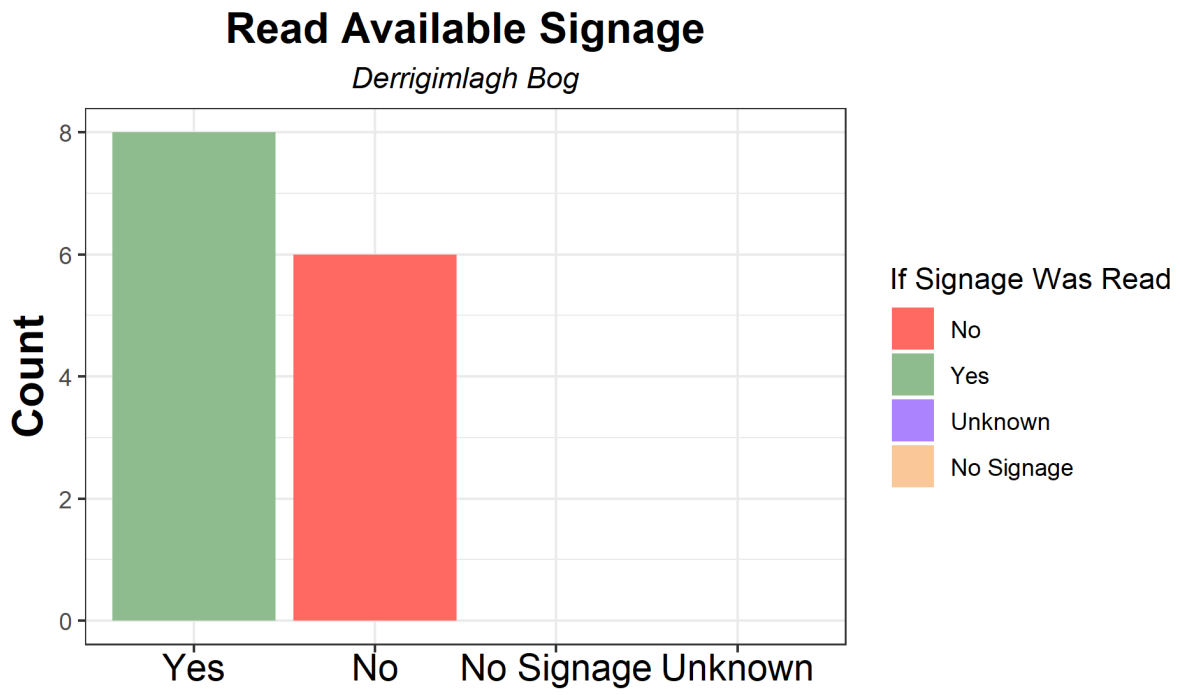


Figure 1.10 Use of Interpretive Material at Derrigimlagh Bog

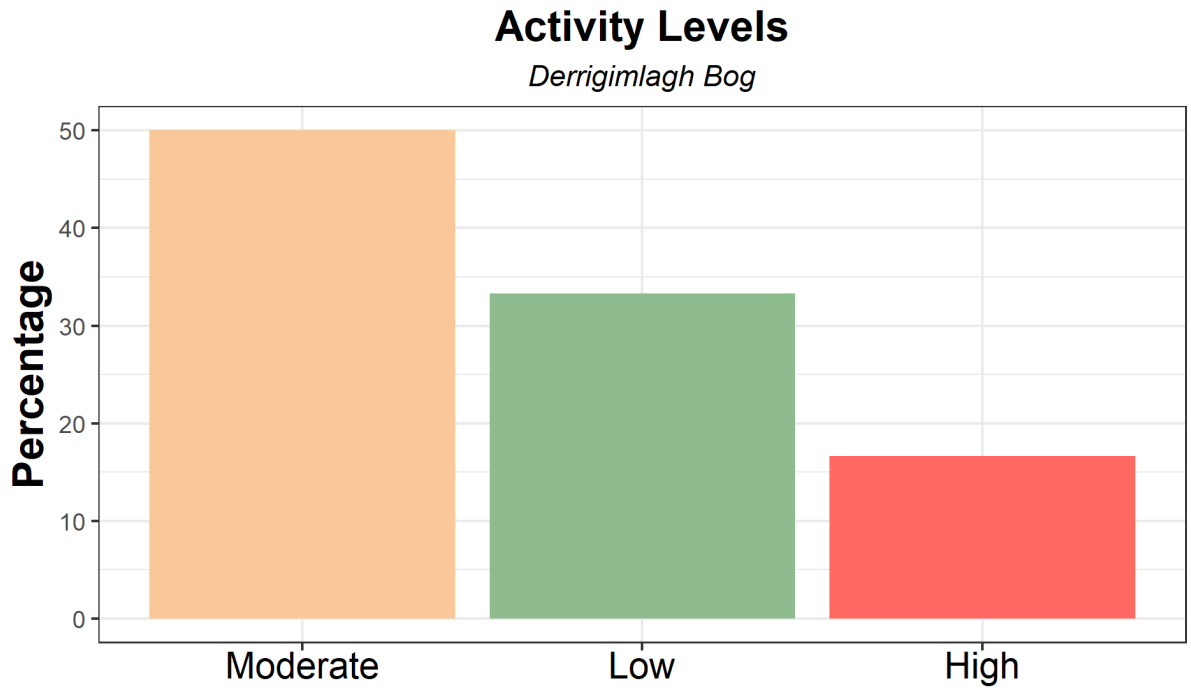


Figure 1.11 Categories of Activity Levels Observed at Derrigimlagh Bog

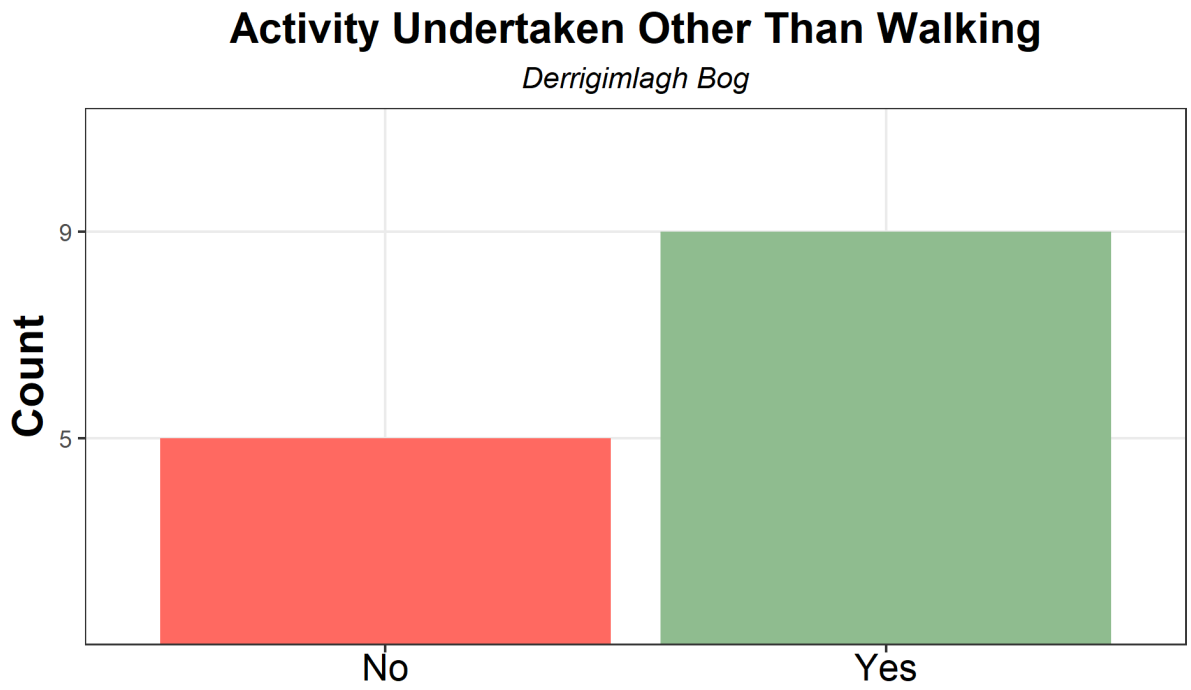


Figure 1.12 Activities undertaken other than walking

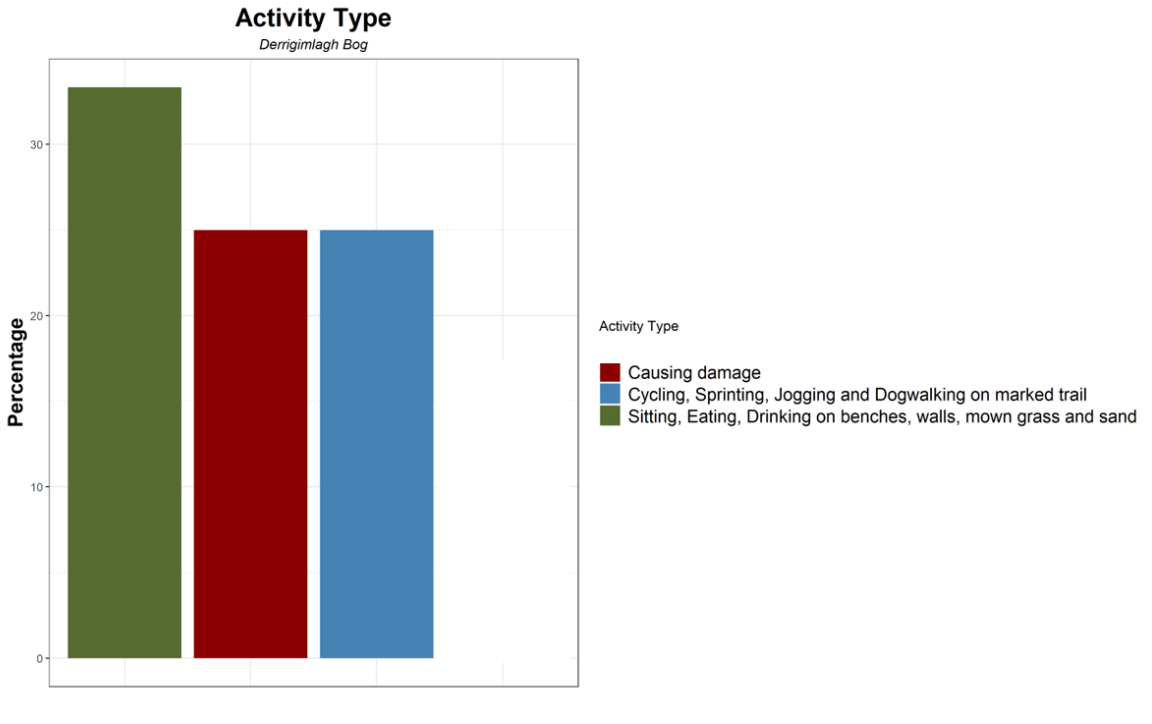


Figure 1.13 Range of Visitor Activities Observed at Derrigimlagh Bog

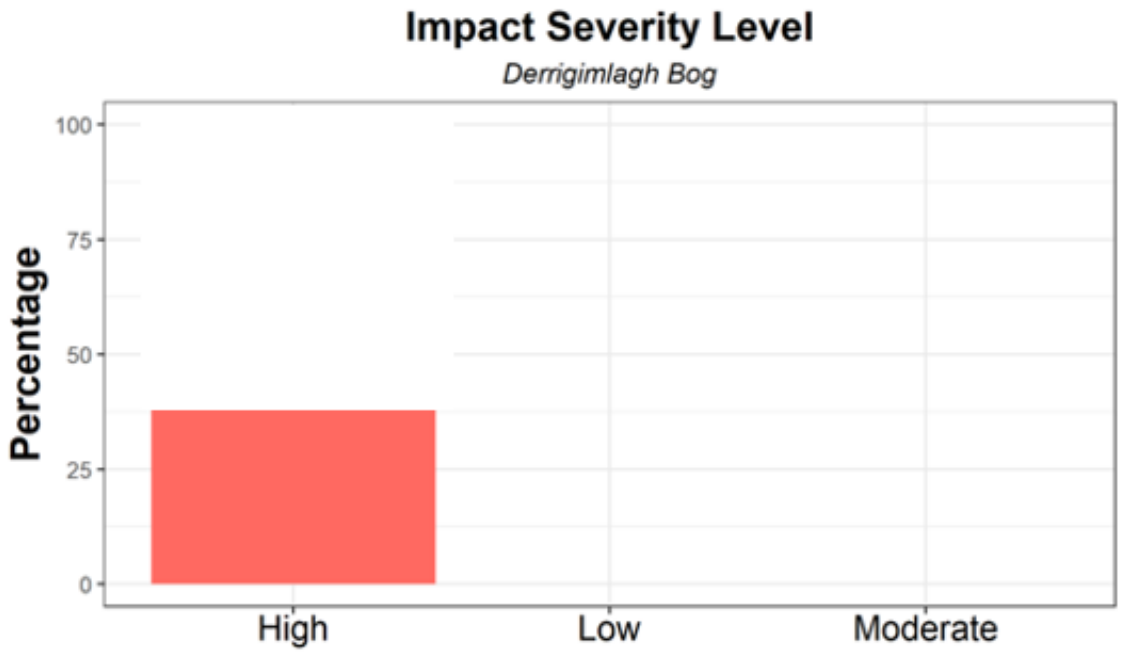


Figure 1.14 Categories of Environmental Impact Levels Observed at Derrigimlagh Bog as a result of Visitor Activities

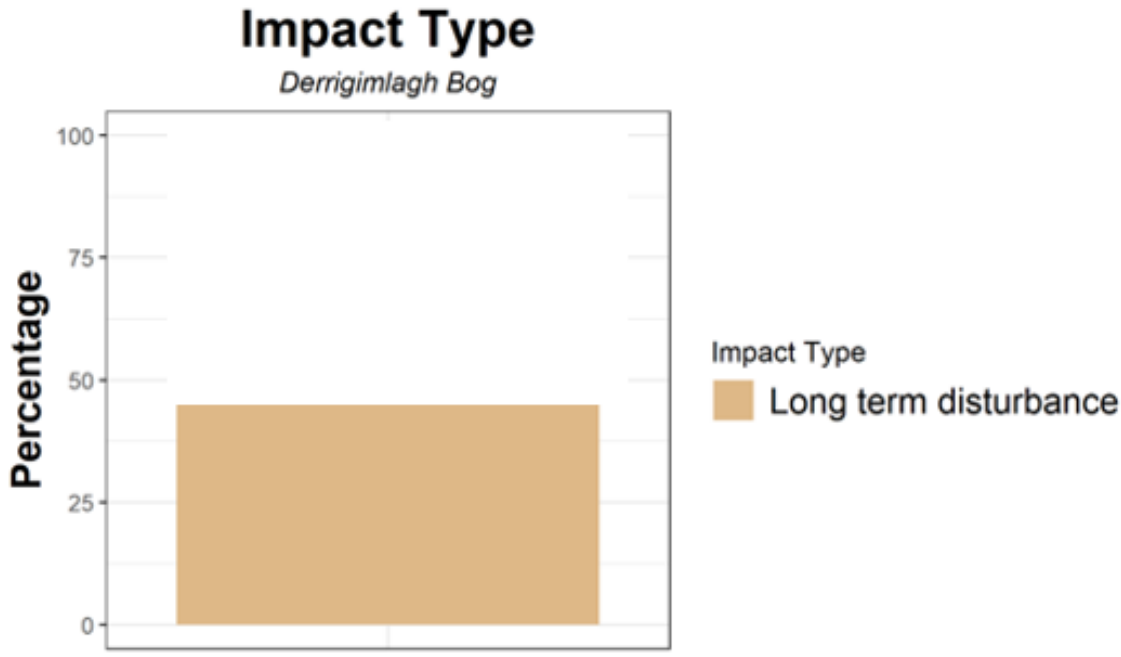


Figure 1.15 Range of Environmental Impacts Observed at Derrigimlagh Bog

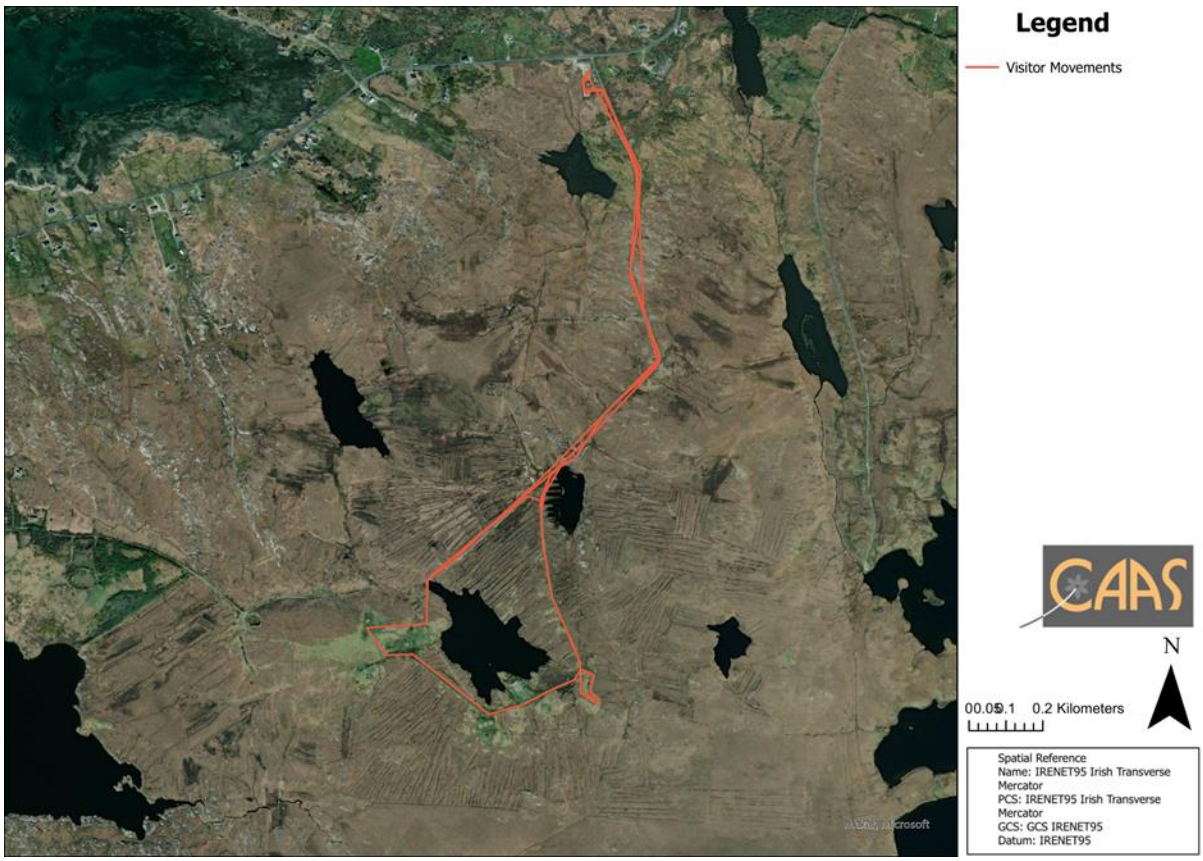


Figure 1.16 Visitor movement patterns at Derrigimlagh Bog

Of the 14 groups recorded on site 64% of them undertook activities other than walking. These activities (identified above) resulted in 5 impacts being observed on site during the survey. Thus, 42% of activities on site resulted in impacts on the environment. The impacts identified for the site were:

Impact Type	Count
Long term disturbance	5

Figure 1.17 Peat cutting at Derrigimlagh Bog

1.6 Ecological Monitoring Results

1.6.1 Ecological Constraints

The species and habitats within Derrigimlagh bog are sensitive to hydrological changes, land use management, aquaculture, anthropogenic disturbance and pollution.

Table 1.1 Designated sites within 2km of Derrigimlagh Bog and relevant ecological receptors

Site Code	Site Name	Distance (km)	Site Type	Qualifying Feature
[002034]	Connemara Bog Complex pNHA	0.18	pNHA	
[002034]	Connemara Bog Complex SAC	0.18	SAC	Atlantic salmon *(Salmo salar)* [1106], European dry heaths [4030], Marsh Fritillary *(Euphydryas aurinia)* [1065], Natural dystrophic lakes and ponds [3160], Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* [6410], Coastal lagoons [1150], Otter *(Lutra lutra)* [1355], Reefs [1170], Depressions on peat substrates of the Rhynchosporion [7150], Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130], Alkaline fens [7230], Oligotrophic waters containing very few minerals of sandy plains *(Littorelletalia uniflorae)* [3110], Blanket bogs * if active bog [7130], Transition mires and quaking bogs [7140], Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Slender naiad *(Najas flexilis)* [1833], Northern Atlantic wet heaths with *Erica tetralix* [4010]
[004181]	Connemara Bog Complex SPA	0.60	SPA	Cormorant *(Phalacrocorax carbo)* [A017], Common Gull *(Larus canus)* [A182], Merlin *(Falco columbarius)* [A098], Golden Plover *(Pluvialis apricaria)* [A140]

[002074]	Slyne Head Peninsula pNHA	0.64	pNHA	
[002074]	Slyne Head Peninsula SAC	0.64	SAC	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia)* * important orchid sites [6210], Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or Isoeto-Nanojuncetea [3130], Annual vegetation of drift lines [1210], Slender naiad *(Najas flexilis)* [1833], Perennial vegetation of stony banks [1220], Mediterranean salt meadows *(Juncetalia maritimi)* [1410], Alkaline fens [7230], Shifting dunes along the shoreline with *Ammophila arenaria* - white dunes [2120], Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* [1330], Petalwort *(Petalophyllum ralfsii)* [1395], Large shallow inlets and bays [1160], Coastal lagoons [1150], Common Bottlenose Dolphin *(Tursiops truncatus)* [1349], Oligotrophic waters containing very few minerals of sandy plains *(Littorelletalia uniflorae)* [3110], Juniperus communis formations on heaths or calcareous grasslands [5130], Lowland hay meadows *(Alopecurus pratensis, Sanguisorba officinalis)* [6510], European dry heaths [4030], Reefs [1170], Machairs * in Ireland [21A0], Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* [6410], Embryonic shifting dunes [2110]

1.6.2 Habitat Descriptions

The main habitat at Derrigimlagh Bog is cutover bog (Fossitt Code PB4). There are also a number of relatively large dystrophic lakes (Fossitt Code FL1) contained within the cutover bog along with small areas of scrub (Fossitt Code WS1).

The trail network is well defined and therefore there is limited interaction between the visitor movements and the habitats. There is an opportunity for biodiversity enhancement measures to be incorporated into the management practices at this site to increase the overall natural value of the landscape.

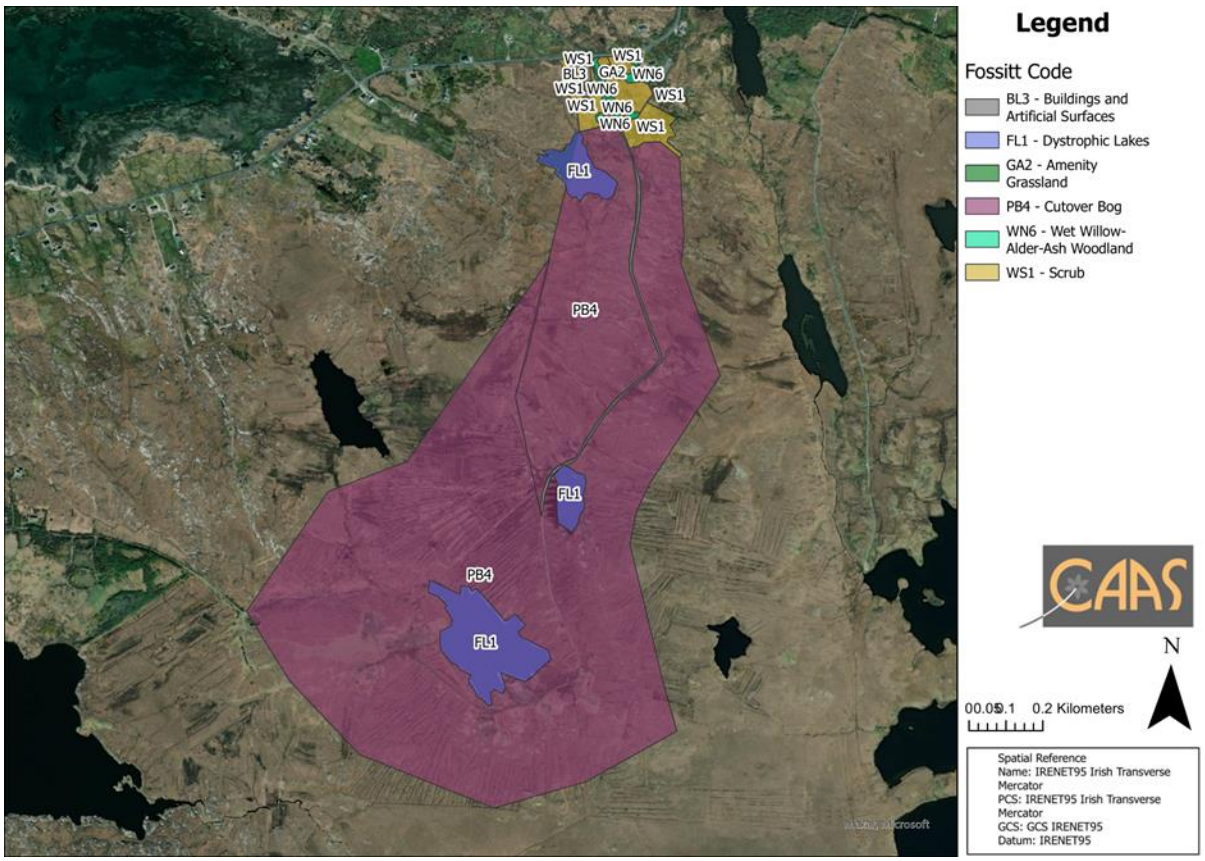


Figure 1.18 Habitats present at Derrigimlagh Bog

1.6.3 Condition Assessment

There are a range of habitats present on site, the assessment of habitat condition identified that the overall habitat quality[2] following the assessment scale was "3" which means the majority of the habitats have a widespread degree of negative impact[3], but slight and capable of rapid recovery. There were 33 recorded incidents of damage to habitats occurring off the marked paths on site.

1.6.4 Mammals on Site

No mammals were recorded during the visit to Derrigimlagh Bog. The NBDC data shows that a large number of seals were recorded close to Derrigimlagh Bog, due to its close proximation to the west coast of Ireland. In terms of terrestrial mammals, soprano pipistrelles, badgers and otters were the most recorded species.

Table 1.2 List of relevant mammals[4] that have been recorded at NBDC Hectad L64

Taxonomic group	Common name	Scientific name	Record count
Terrestrial mammal	American Mink	*Mustela vison*	1
Terrestrial mammal	Brown Long-eared Bat	*Plecotus auritus*	1
Terrestrial mammal	Brown Rat	*Rattus norvegicus*	2
Terrestrial mammal	Daubenton's Bat	*Myotis daubentonii*	2
Terrestrial mammal	Eurasian Badger	*Meles meles*	5
Terrestrial mammal	Eurasian Red Squirrel	*Sciurus vulgaris*	1
Terrestrial mammal	European Otter	*Lutra lutra*	5
Terrestrial mammal	Irish Hare	*Lepus timidus subsp. hibernicus*	4
Terrestrial mammal	Irish Stoat	*Mustela erminea subsp. hibernica*	1
Terrestrial mammal	Lesser Noctule	*Nyctalus leisleri*	2
Terrestrial mammal	Pine Marten	*Martes martes*	1
Terrestrial mammal	Pipistrelle	*Pipistrellus pipistrellus*	2

[2] This value was calculated using the methods set out in Appendix II
[3] The majority of habitat impacts are due to sheep grazing and turf cutting, not visitor activity.
[4] NBDC Hectad L64 lists 11 Marine Mammals – mostly cetaceans as well as Grey Seals

Taxonomic group	Common name	Scientific name	Record count
Terrestrial mammal	Red Deer	*Cervus elaphus*	1
Terrestrial mammal	Red Fox	*Vulpes vulpes*	1
Terrestrial mammal	Soprano Pipistrelle	*Pipistrellus pygmaeus*	19

1.7 Recommendations

There are opportunities present at the site to engage in long term habitat restoration to increase floral diversity and use the site as an exemplar location to showcase our cultural heritage related to turf – while also demonstrating biodiversity enhancement as we transition away from turf cutting processes.

Seasonal attention is required to wear and tear at junctions between paved and board-walked areas and also along transitions to areas of bog vegetation. Consideration should be given to localised temporary sheep exclusion from the most affected areas to allow trail recovery.

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

Appendix I Activity and impact code index used for recording visitor behaviours on site

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 sites[5]. 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 any change that reduces the long-term viability habitats and its qualifying interests [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 metres intervals along the selected pathways, an assessment of habitat condition is made, using an established rating scale of 1 to 5; 1 being no impact and 5 being high impact. Each rating is then translated into a condition assessment, as displayed in Table II - 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 then recorded and reported as the resultant overall rating of the assessed habitat condition assessment for each site.

Table II-1 Habitat rating scale and condition assessment

Scale	Condition
1	No evidence of any habitat degradation observed.
2	Localised habitat degradation, but slight and capable of rapid recovery.
3	Widespread habitat degradation, but slight and capable of rapid recovery.
4	Localised habitat degradation, requiring intervention to allow full recovery.
5	Widespread habitat degradation, requiring intervention to allow full recovery.

[5] 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.