NATIONAL TOURISM MONITORING PROGRAMME 2021-2025

ANNUAL RESULTS FOR 2022

LOUGH KEY FOREST PARK

for: **Fáilte Ireland**

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Lough Key Forest Park – Interesting Finds

ECOLOGICAL HIGHLIGHTS

Lough Key is a known stronghold of the red squirrel which is a protected species. Pine marten are also known to have strong populations at the site.

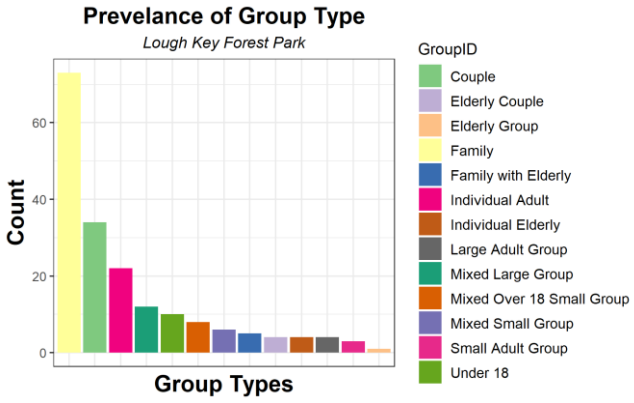
The diversity of habitats presents on site such as broadleaf woodland, the lake, grassland patches, marshy areas etc. provide ample resources for a number of bat species.

KEY RECOMMENDATIONS

- Littering remains an impact on site and a stronger litter management process is needed for Lough Key Forest Park.
- In general, the site is both well managed and ecologically diverse. The introduction of interactive signage related to the biodiversity and ecology on site as well as nature related education events could potentially increase visitor experiences on site.

VISITOR NUMBERS AND DWELL TIME

- 627 people visited the site over 8 hours
- Average dwell time of 18 minutes



VISITOR INTERACTION & MANAGEMENT

- Visitor interactions on site well controlled with strong management practices in place.
- Vast majority of visitors undertook activities other than walking.
- 60% of all observable impacts recorded were either littering or temporary disturbance to wildlife.
- Severe reduction in site dwell time when compared to 2021.
- Majority of visitors either did not read signage that was available on site or have signage available to them.
- Nearly 80% of all activities recorded were deemed to be of a low level such as jogging on marked trails.

Highlights:

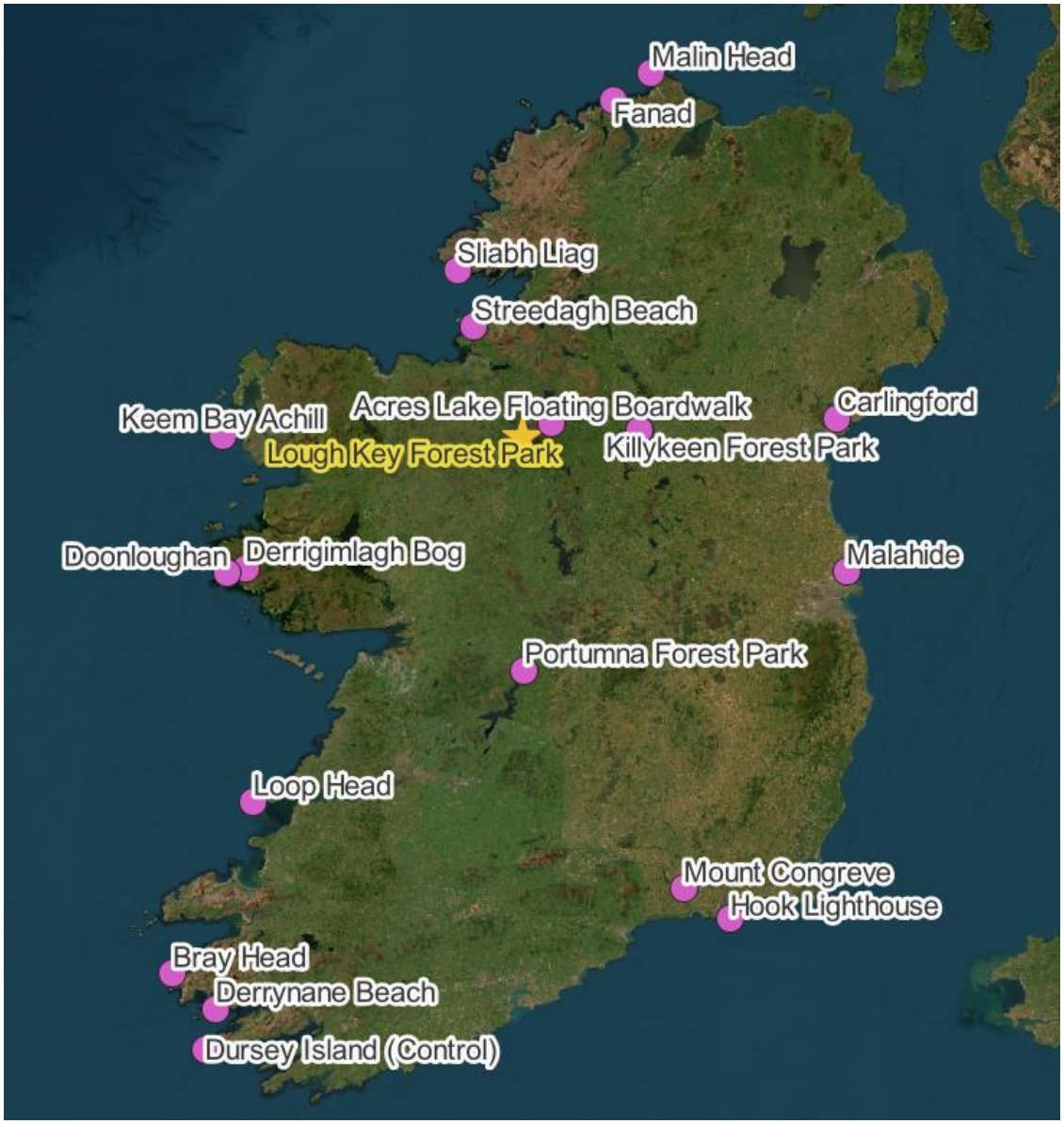
- Strong populations of red squirrel and pine marten.
- Controls should be implemented for the high levels of littering observed.
- Decrease in observable impacts despite an increase in number of visitors to the site.
- Site signage is limited – missed opportunity for wildlife and habitats.

1 Lough Key Forest Park

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.

1.1.1 Looking Ahead

The National Tourism Monitoring Programme aims to assess and characterise visitor movements and impacts in 19 popular Failte Ireland tourism sites across Ireland within a 5-year period. This will be achieved through building on the methodologies and findings of the Wild Atlantic Way Environmental Monitoring Programme (2015-2019), by monitoring yearly trends in visitor numbers and movements during the high tourism season at each site. In addition to the annual visitor trend monitoring; visitor impact assessments, which examine visitor activity levels relative to condition assessments, will also be taken every two years for each site. At the end of the 5-year period, the resultant extensive data set will be analysed for long term trends and correlations between visitor numbers, visitor activity, and site condition assessments, at each site across the 5 years of the programme.

This monitoring programme will allow an examination of year-on-year shifts in visitor impact and trends, across each of Fáilte Ireland's regional areas; The Wild Atlantic Way, Irelands Hidden Heartlands, Irelands Ancient East and Dublin, resulting in an annual interim report for each year - while also assessing visitors trends, and changes in the condition of the each of the sites' habitats in relation to visitor trends, over a the entire 5-year period of the programme.

The long-term aim of the Monitoring Programme will be to inform local authorities and stakeholders to help in the design and implementation of methods that will encourage the sustainable management of visitor numbers and tourism activities, while also aiming to protect vulnerabilities of the local area's habitats in order to reduce environmental impact and enable more effective local conservation of each site.

1.2 Methods & Surveys

The following surveys were undertaken at Lough Key Forest Park:

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 Lough Key Forest Park was undertaken on the 21st of August 2022, with max temperatures reaching approximately 18.7° C, low levels of 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. It is also important to note that there was a lack of interaction with the subject matter of the surveys to ensure that there is no influence of the surveyor at all on the resultant data.

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.

1.3 Site Description of Lough Key Forest Park

Lough Key Forest Park (Figure 1.1), a Coillte managed site, is a perfect example of a scenic forested visitor attraction in Boyle, County Roscommon. It contains many activities including ziplining and various walks and trails along with water activities within Lough Key itself. As the area is a forested area and located directly south of Lough Key, it contains a wide range of habitats that support local wildlife such as broadleaved woodland, mixed broadleaved/conifer woodland, reed and large sedge swamps and mesotrophic lakes.

There have been no significant changes in signage and features between the 2021 and 2022 surveys.

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

Figure 1.1 Lough Key Forest Park

1.3.1 Critical Infrastructure

Table 1.1 Summary of Wastewater infrastructure at Lough Key Forest Park

Wastewater Treatment Plant (WWTP)	Irish Water Indication of Capacity	Comment
Toilet facilities are available on site No current WWTP on site at Boyle Nearest settlement with WWTP in Boyle (WWTP Reg #D0121)	Spare capacity available[2]	Current wastewater facilities are sufficient There is adequate capacity within the treatment plant as stated in the Roscommon CDP 2023-2029[3]

[2] https://www.water.ie/connections/developer-services/capacity-registers/wastewater-treatment-capacity-register/roscommon/
[3] https://www.rosdevplan.ie/roscommon-county-development-plan-2022-2028/

Table 1.2 Summary of Drinking Water infrastructure at Lough Key Forest Park

Drinking Water	Water Resource Name (WRZ)	Irish Water Indication of Capacity	Comment
Nearest serviced settlement to Lough Key Forest Park is Boyle	Boyle Regional	Capacity available – Level of service (LoS) improvement required[4]	Current water supply is sufficient

Table 1.3 Summary of Transport infrastructure at Lough Key Forest Park

Nearest Settlement	Current Transport Infrastructure	Comment
Boyle	Accessible by the N4 and directly via Greenway from Boyle There are car parking facilities on site	Current transport infrastructure is sufficient

1.4 Pathways and Features Condition Results

1.4.1 Pathway Condition

The paths at Lough Key Forest Park of consist mainly of soft infrastructure pathways, with a small amount of hard infrastructure paths, with heavy levels of compaction seen throughout Lough Key Forest Park. Damage was noted along the pathways due to trampling by walkers and the presence of rhododendron across Lough Key Forest Park.

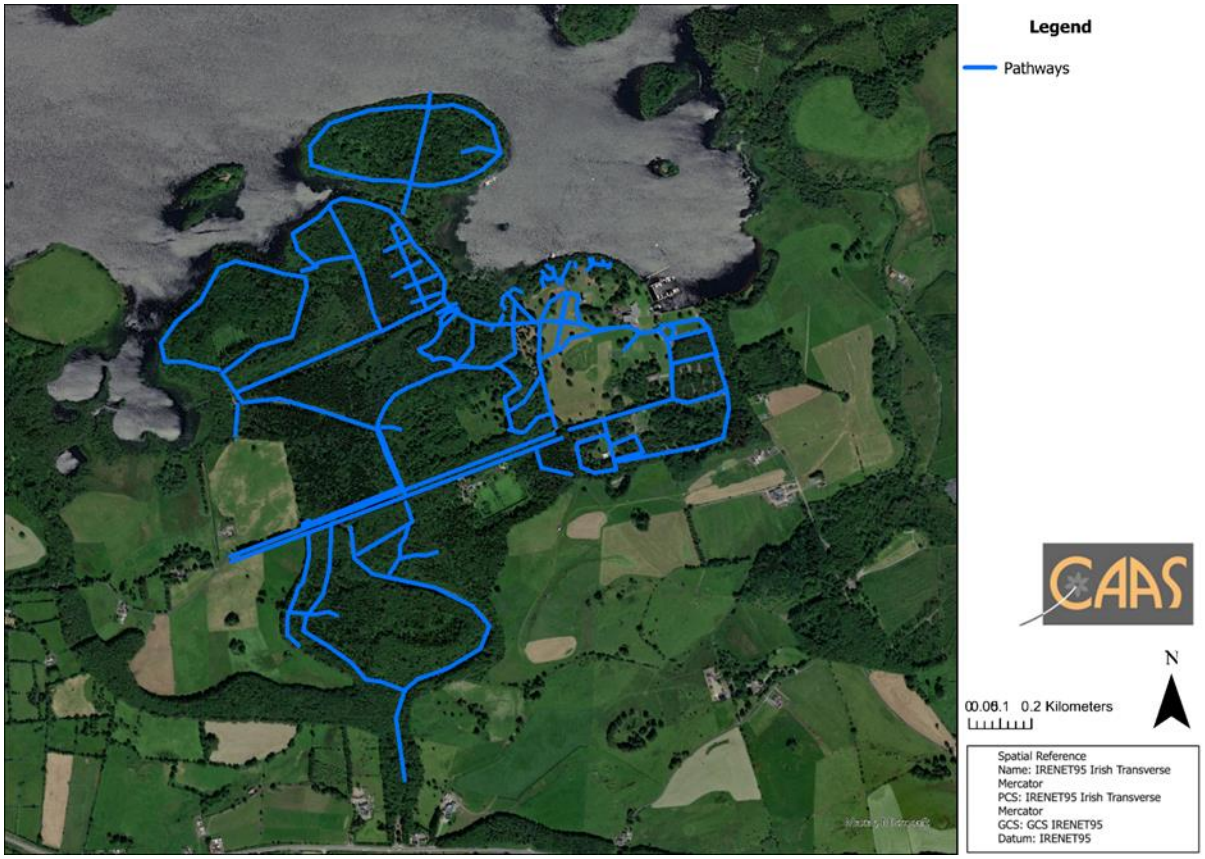


Figure 1.2 Pathways identified at Lough Key Forest Park

[4] https://www.water.ie/connections/developer-services/capacity-registers/wastewater-treatment-capacity-register/roscommon/

Figure 1.3 Pathway in Lough Key Forest Park

1.4.2 Features Condition

There are numerous signs within Lough Key Forest Park that relate to the activities that can be undertaken in the park itself, including multiple signs relating to orienteering that takes place within the park. There are also a number of trail markers throughout the park that show the designated pathways throughout the site.

To properly accommodate the activities available within Lough Key Forest Park, there is a car park, set down area for shuttle buses along with many benches and tables (Figure 1.5). There are also wooden features that relate to the activity park within the site along with cycle paths and a canoe rental centre for Lough Key itself (Figure 1.5).

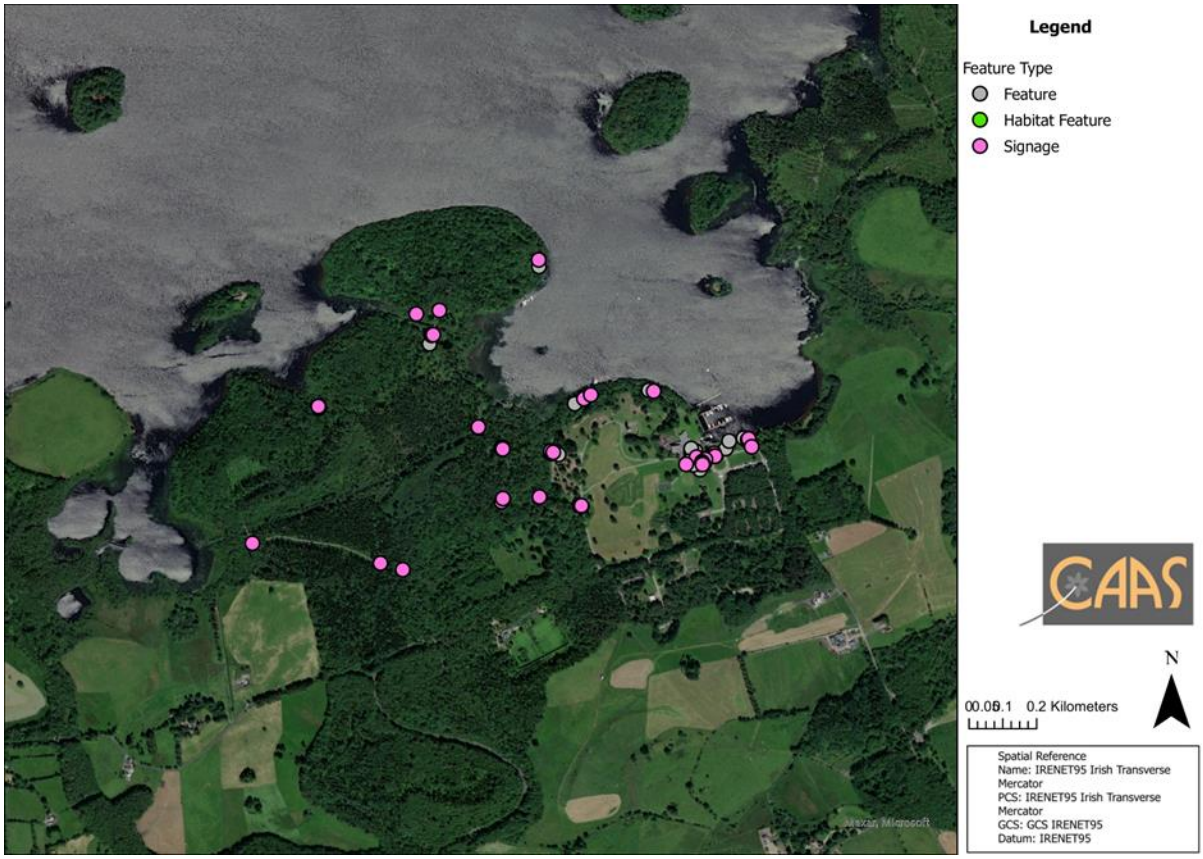


Figure 1.4 Features recorded at Lough Key Forest Park

Figure 1.5 Features at Lough Key Forest Park

1.4.3 Hazards

Few hazards were observed at Lough Key Forest Park. However, an unprotected broken barrier was noted along the edge of Lough Key itself.

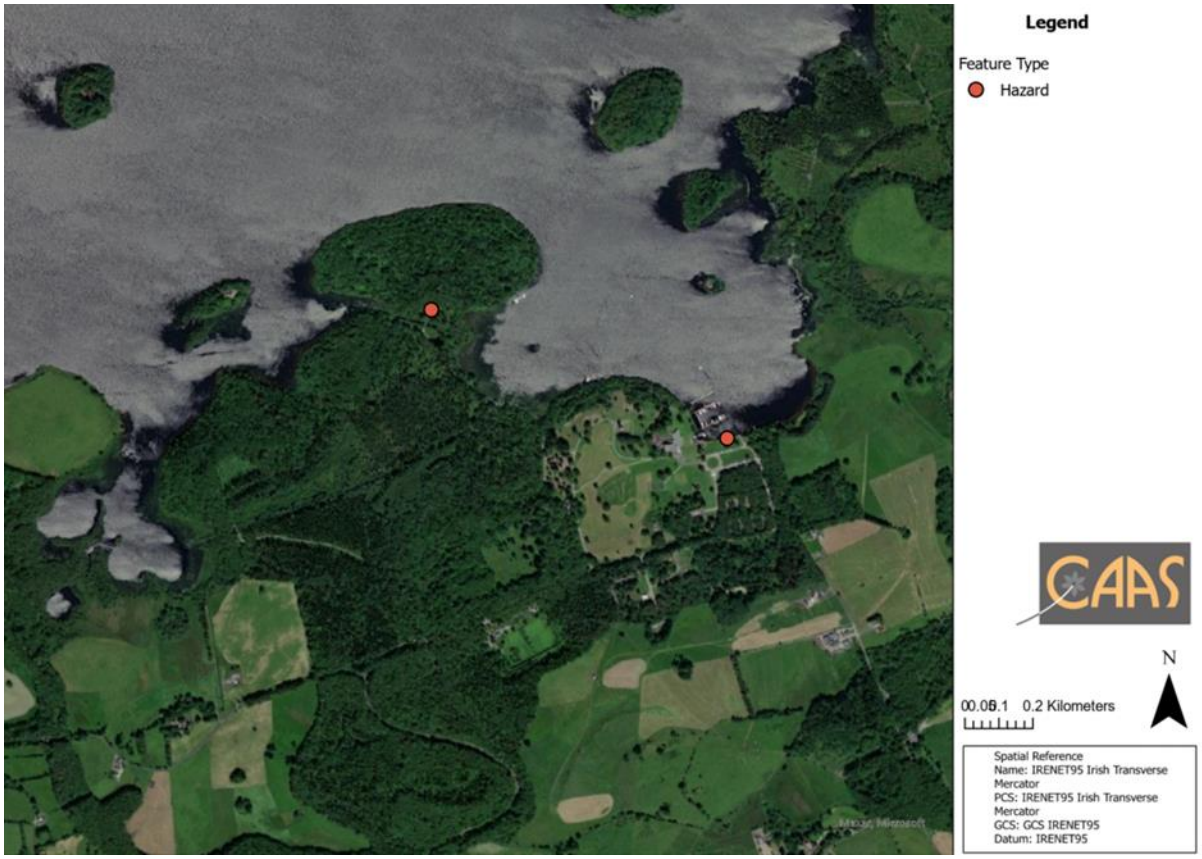


Figure 1.6 Hazards recorded at Lough Key Forest Park

Figure 1.7 Broken barrier at Lough Key Forest Park

1.5 Visitor Characterisation Survey

The visitor monitoring surveys resulted in a total of 627 visitors (which represent 186 group observations), a large increase from 426 visitors in 2021. The site is most popular amongst the family group with the dominant mode of transport being car, while in 2021 the majority of visitors travelled to the site by foot. The average dwell time for the site was 18 minutes, a severe decrease from 53 minutes in 2021; with the following activities undertaken during the survey (listed in order of occurrence rate):

Activity Type
Dogwalking (on lead)
Cycling
Kayaking
Picnicking
Powered Movement Through Water (Boat, Jetski etc)
Dogwalking (off lead)
Swimming
Sitting
Sports Match (informal)
Sprinting
Birdwatching and Bird feeding
Cliff Jumping/ Diving
Climbing
Cycling, Sprinting, Jogging and Dogwalking on marked trail
Other
Birdwatching
Causing damage
Cycling, Sprinting, Jogging and Dogwalking off marked trail
Fishing
Football, Frisbee/Catch, Tennis and other informal sports matches
Frisbee/ Catch
Jogging
Littering
Other Aquatic Sport
Sailing
SUP Boarding

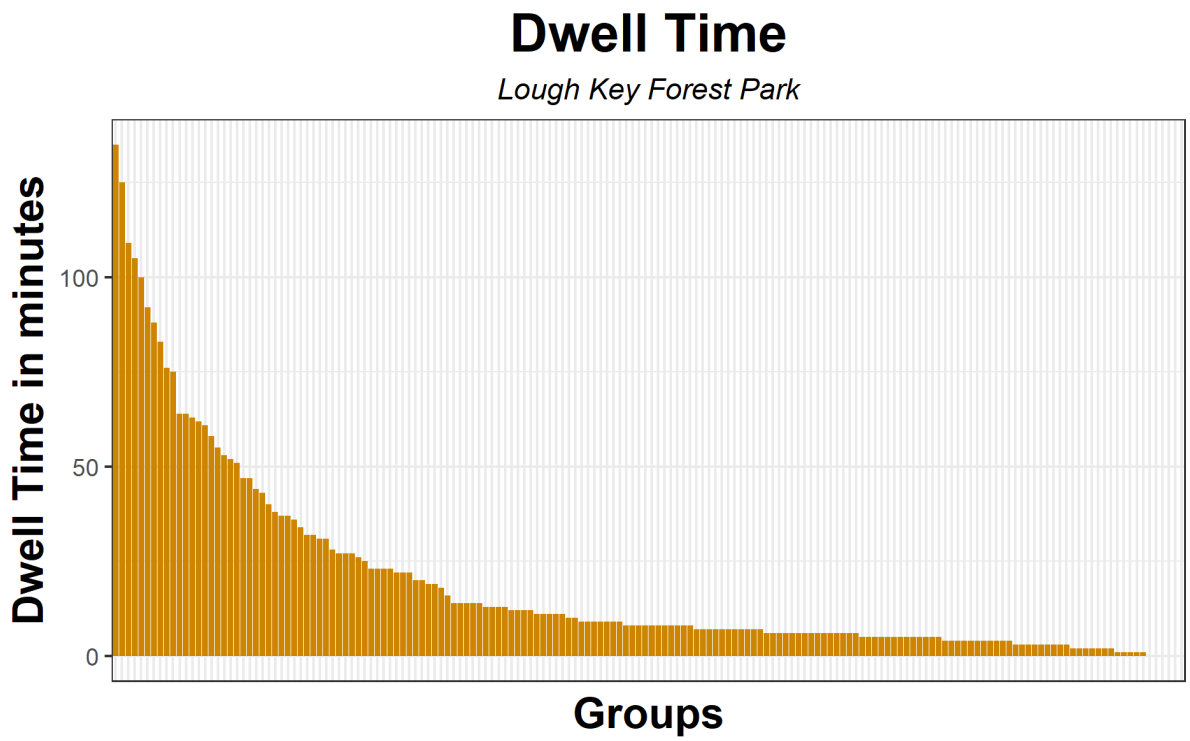


Figure 1.8 Duration of Time Spent at Lough Key Forest Park

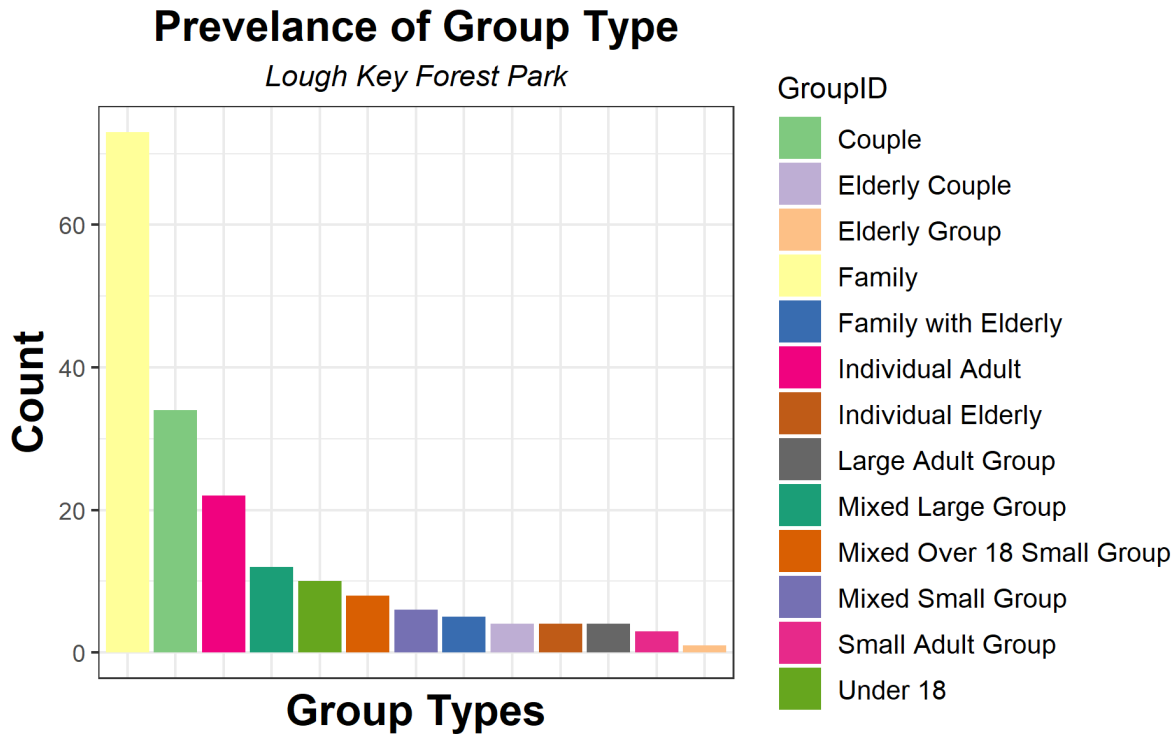


Figure 1.9 Groups of visitors that visited Lough Key Forest Park

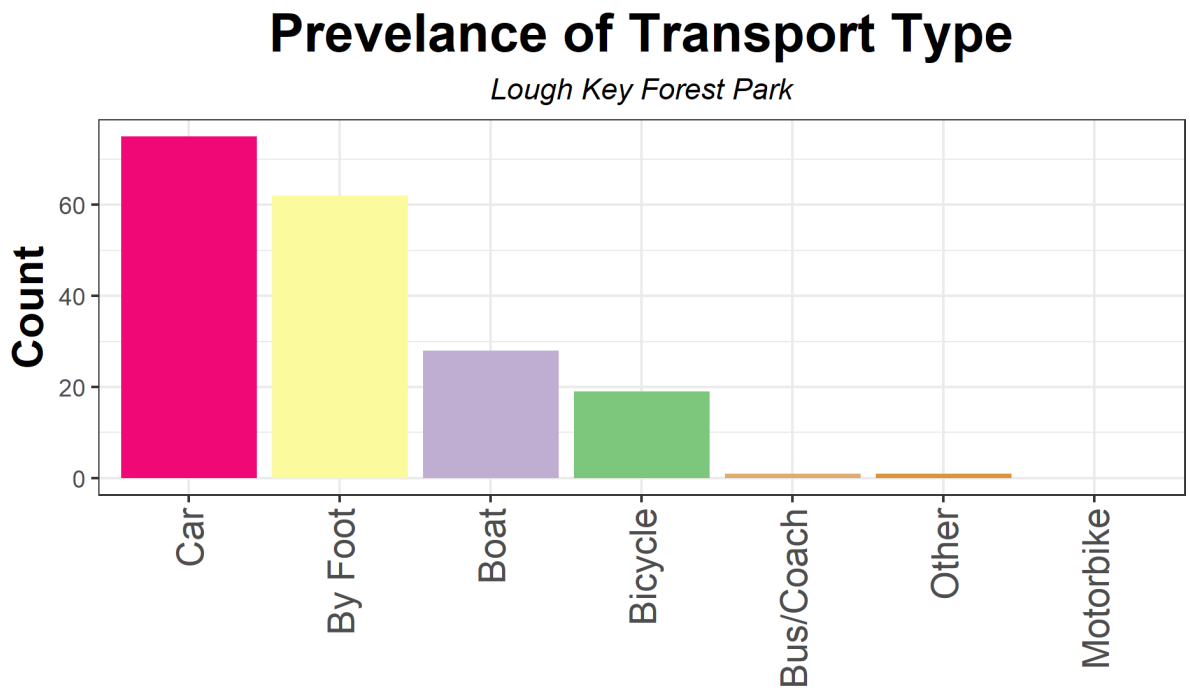


Figure 1.10 Mode of transport used to visit Lough Key Forest Park

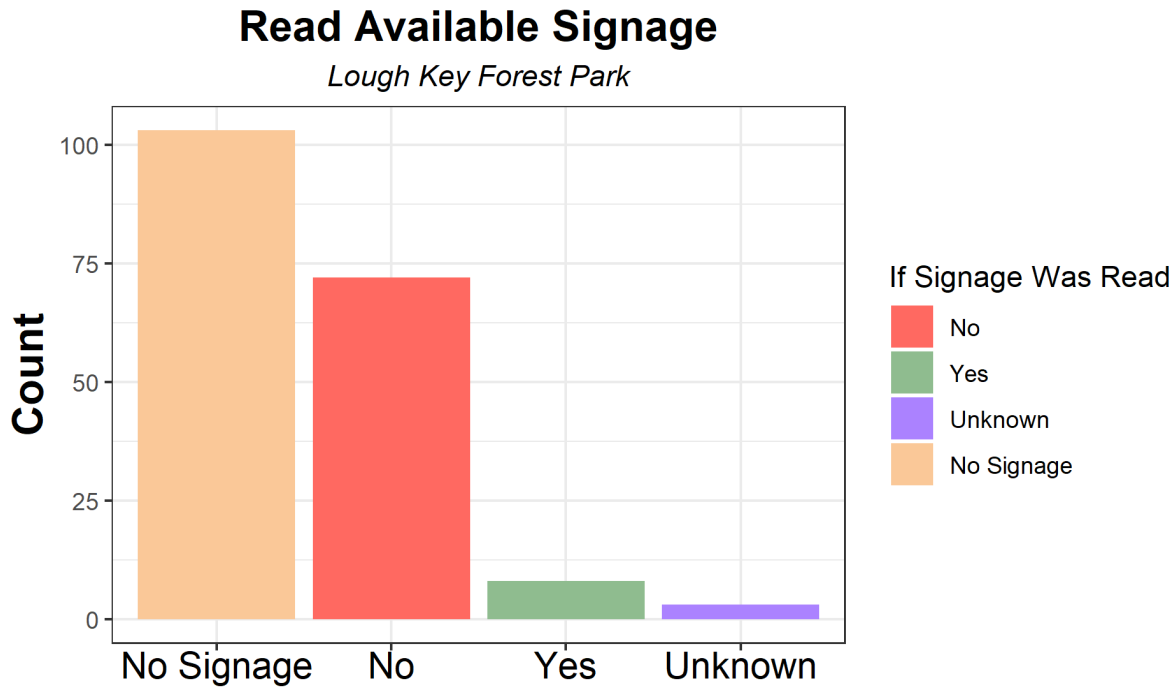


Figure 1.11 Use of Interpretive Material at Lough Key Forest Park

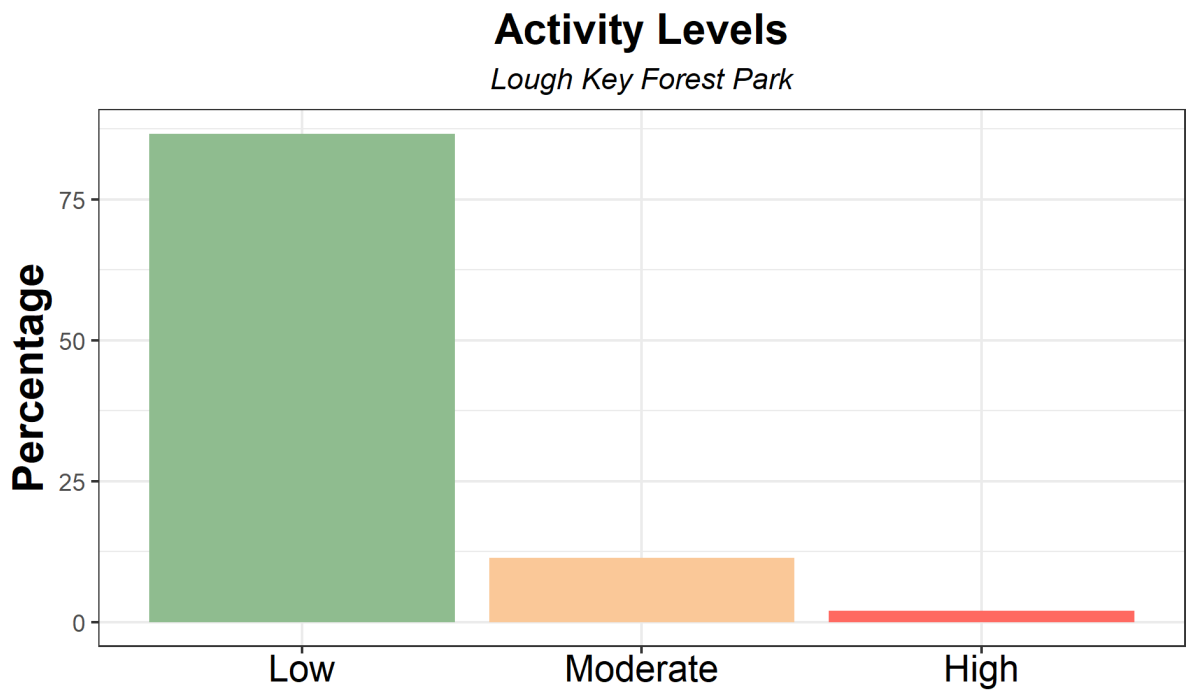


Figure 1.12 Categories of Activity Levels Observed at Lough Key Forest Park

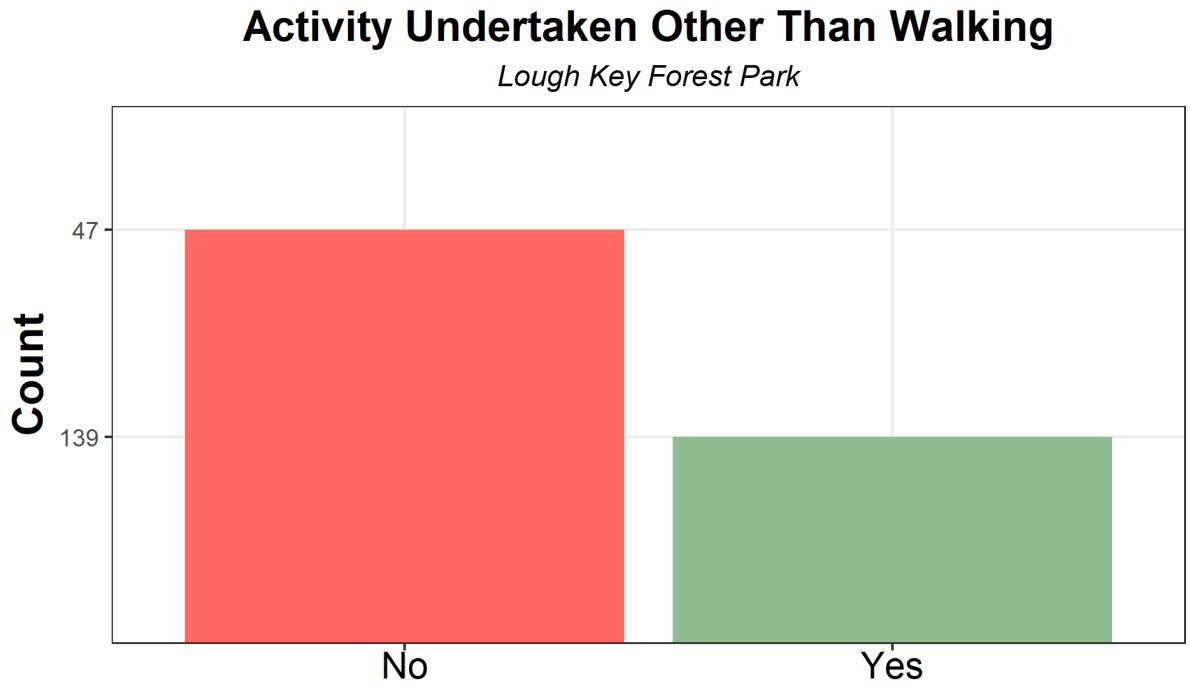


Figure 1.13 Activities undertaken other than walking

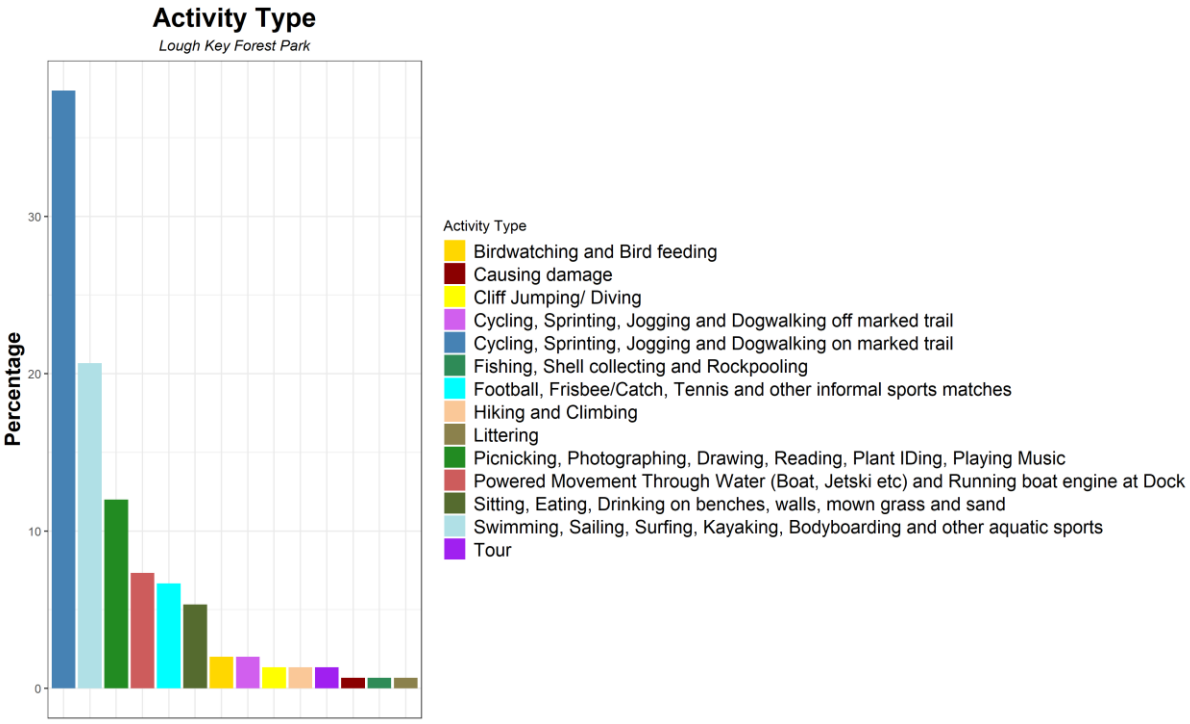


Figure 1.14 Range of Visitor Activities Observed at Lough Key Forest Park

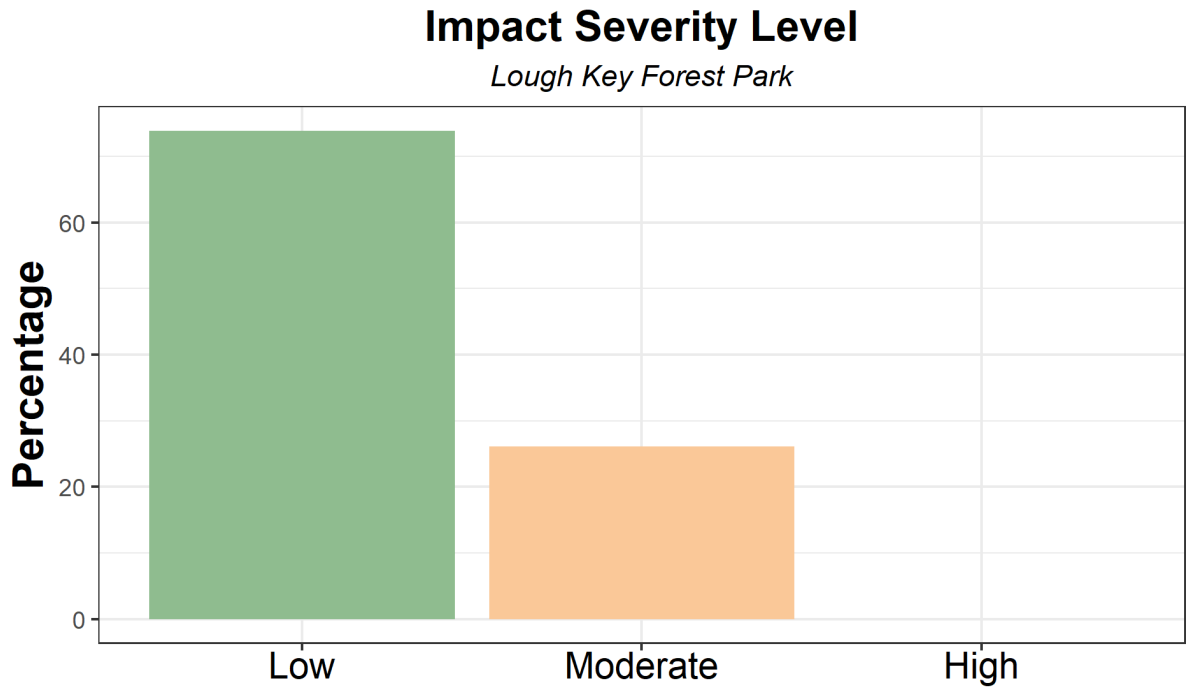


Figure 1.15 Categories of Environmental Impact Levels Observed at Lough Key Forest Park as a result of Visitor Activities

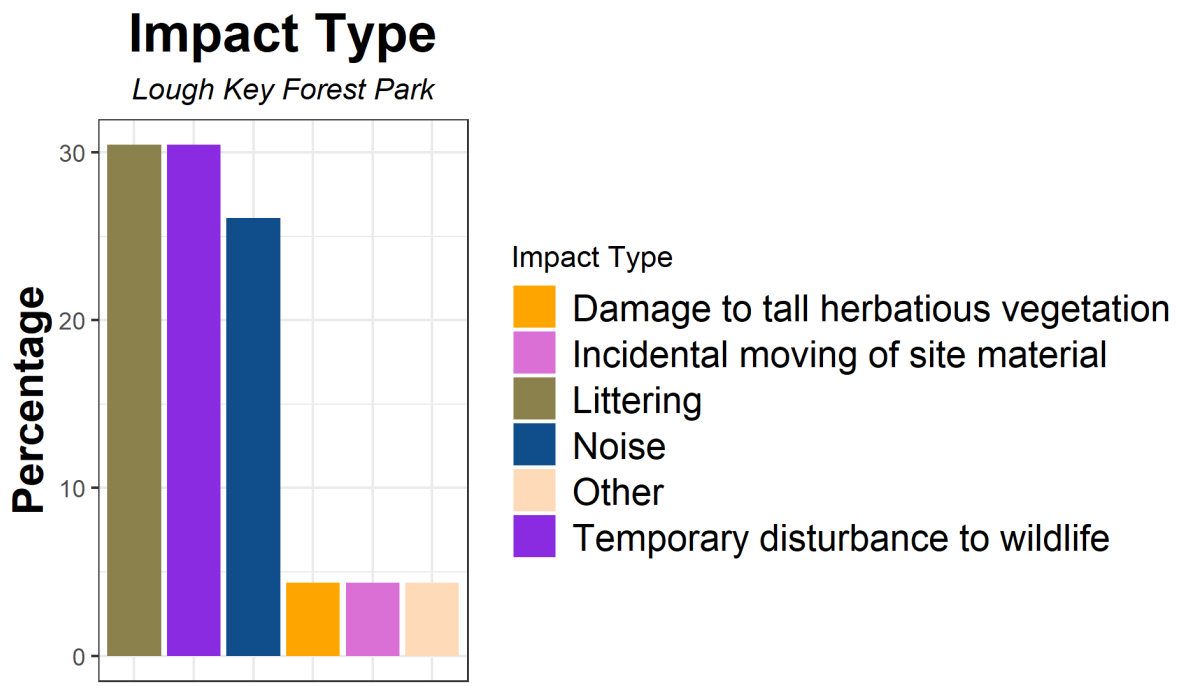
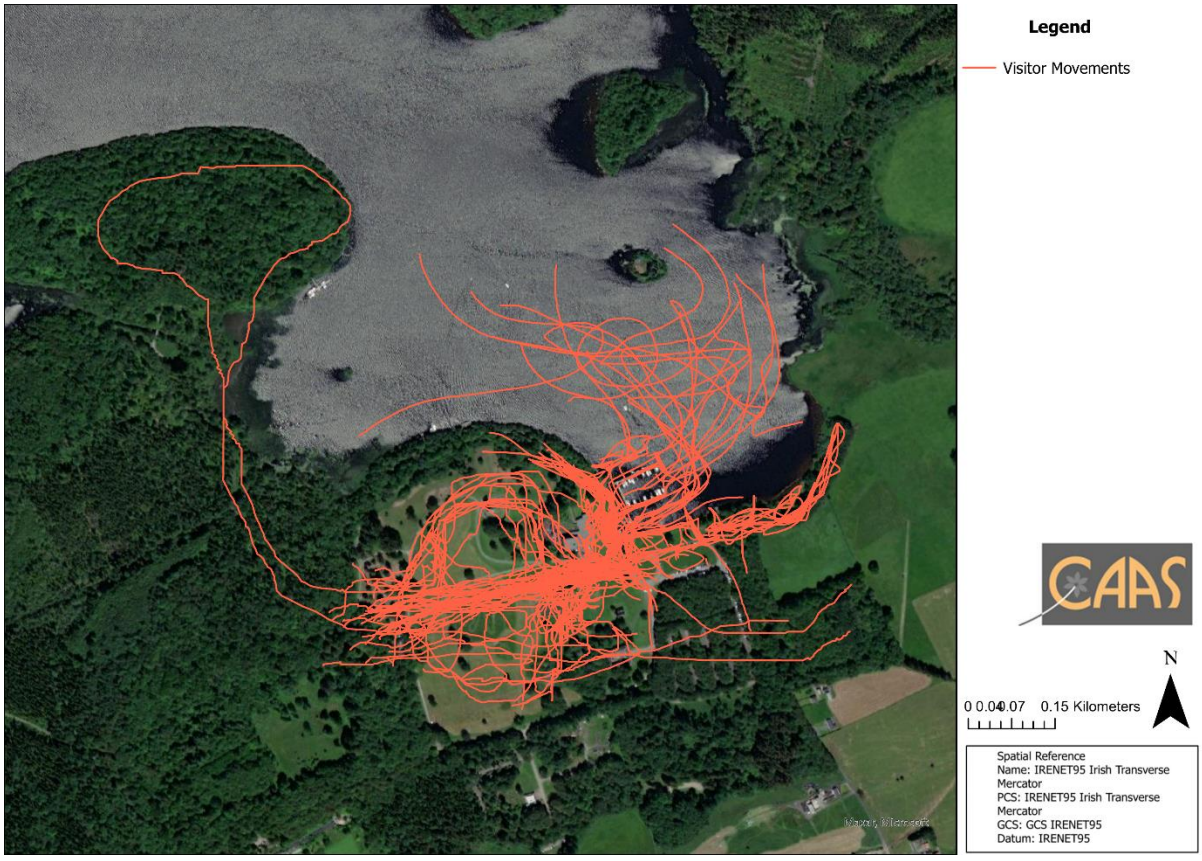


Figure 1.16 Range of Environmental Impacts Observed at Lough Key Forest Park

The environmental impacts that were observed and recorded used the same coding system as the Wild Atlantic Way Monitoring[5]. These impacts were recorded if a visitor's activity or movement resulted in one of the defined impacts noted in said coding system, which were categorised by severity level to the environment, ranging from light desire lines to disturbance of wildlife to burning of materials.



[5] See Appendix I for more detail

Figure 1.17 Visitor movement patterns at Lough Key Forest Park

Of the 186 groups recorded on site 75% of them undertook activities other than walking, a slight decrease from 83% in 2021. These activities (identified above) resulted in 23 impacts being observed on site during the survey, a sharp decrease in the 52 activities resulting in impacts in 2021. Thus, 15% of activities on site resulted in impacts on the environment, while 40% of activities in 2021 resulted in impacts. The impact severity levels varied with 74% of the impacts being low, 26% of impacts being moderate, and 0% of impacts being high severity. The impacts identified for the site were:

Impact Type	Count
Damage to tall herbaceous vegetation	1
Incidental moving of site material	1
Littering	7
Noise	6
Other	1
Temporary disturbance to wildlife	7

1.6 Comparison with Previous Survey Results

The data obtained has provided an opportunity to compare significant changes results with previous years. Where this occurs, this will be noted in the relevant sections.

The 2022 Visitor Characterisation Survey in Lough Key Forest Park produced a number of changes from the 2021 Visitor Characterisation Survey. Noted changes include;

- A large decrease was noted between the number of impacts observed from 2022 when compared to 2021;
- An increase in percentage of visitors undertaking cycling, dog walking, jogging etc., along marked trails; and,
- Increase of visitors during the 8-hour survey by 47% to 627 visitors over 186 groups with average dwell time reducing by 66%.

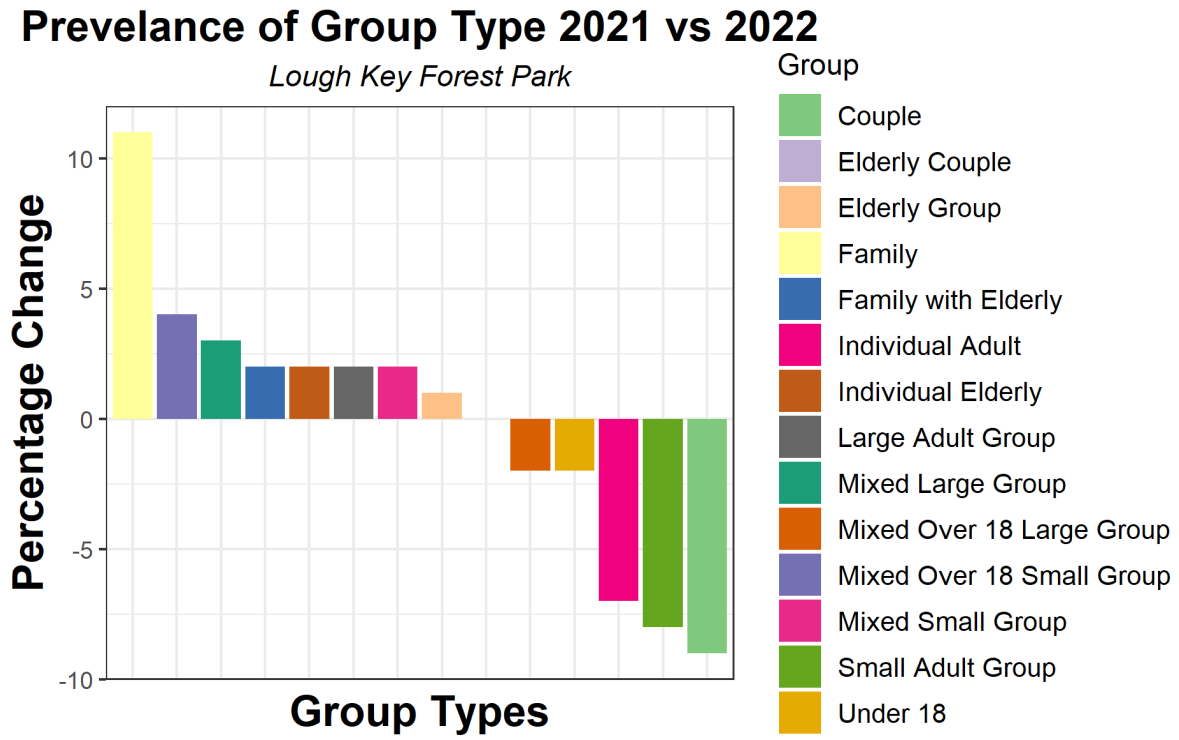


Figure 1.18 Percentage Change in groups of visitors that visited Lough Key Forest Park between 2021 and 2022

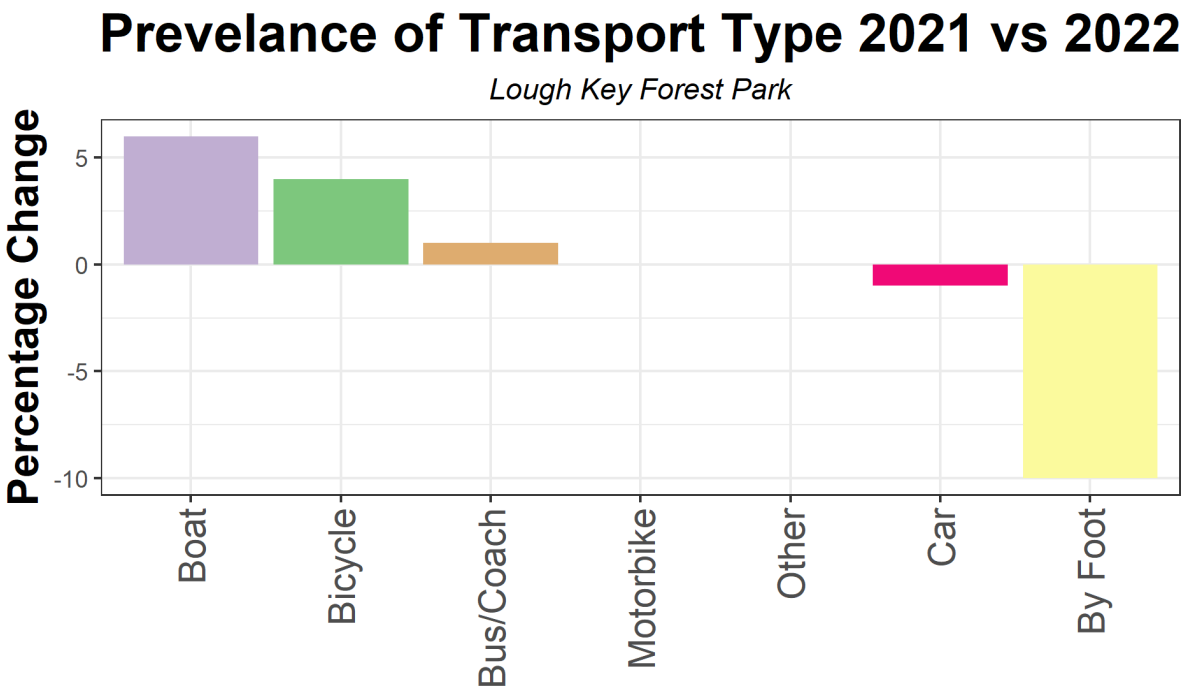


Figure 1.19 Percentage Change in mode of transport used to visit Lough Key Forest Park between 2021 and 2022

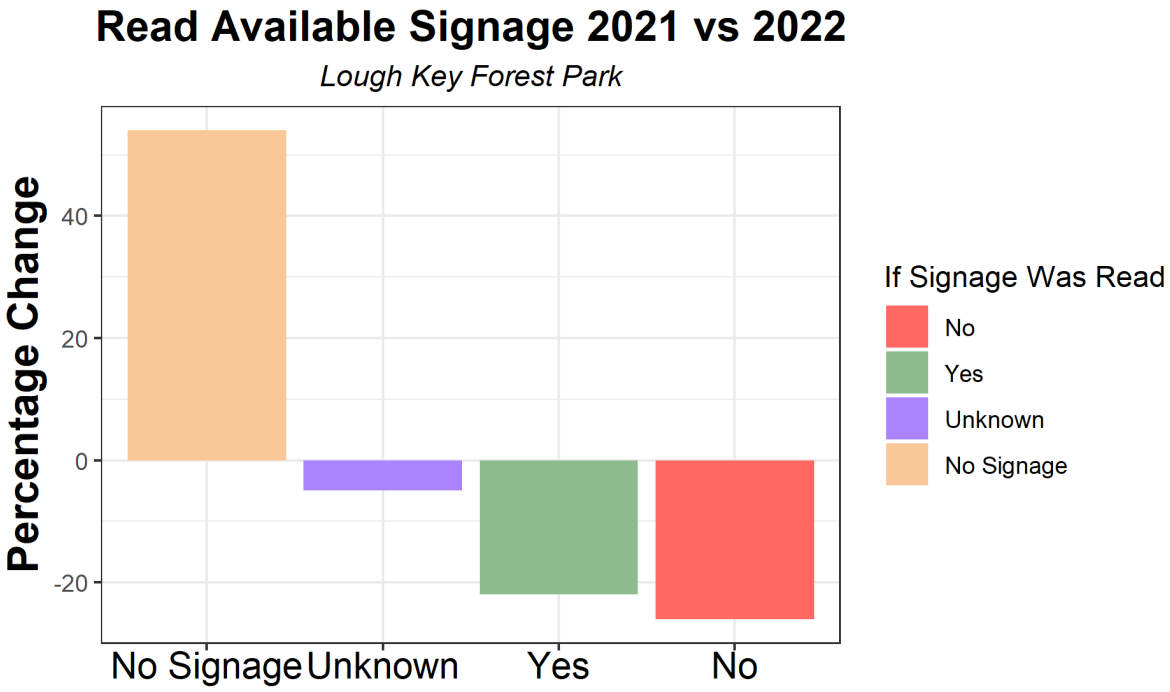


Figure 1.20 Percentage change in use of Interpretive Material at Lough Key Forest Park between 2021 and 2022

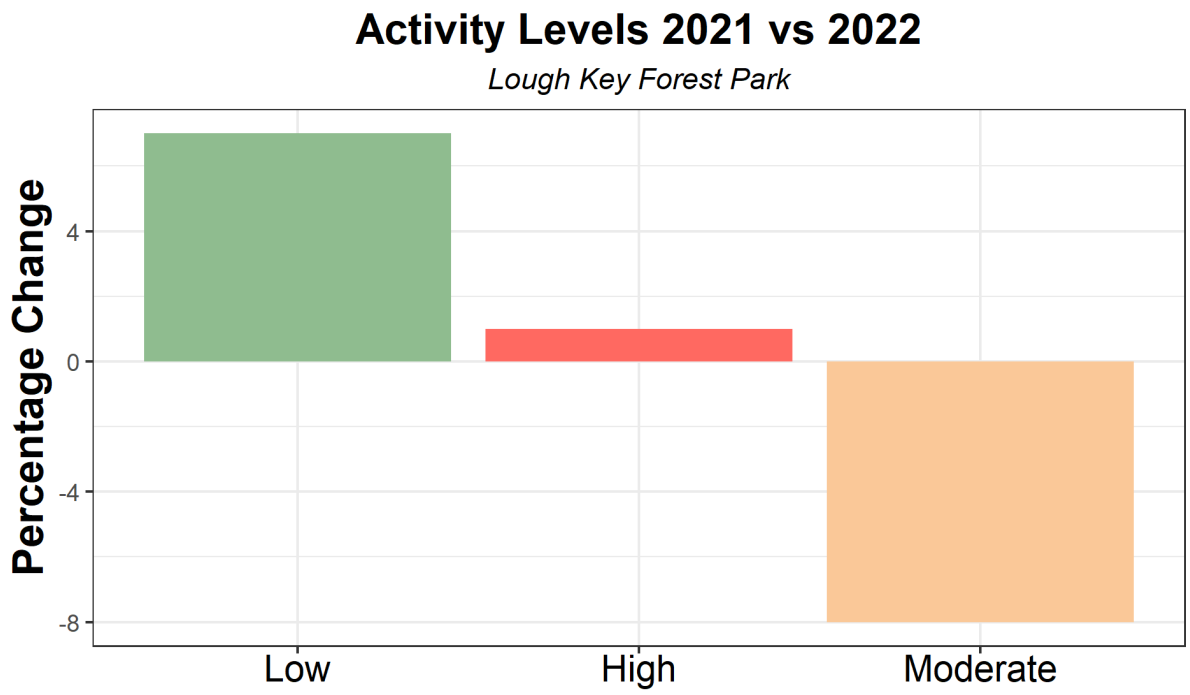


Figure 1.21 Percentage change in categories of Activity Levels Observed at Lough Key Forest Park between 2021 and 2022

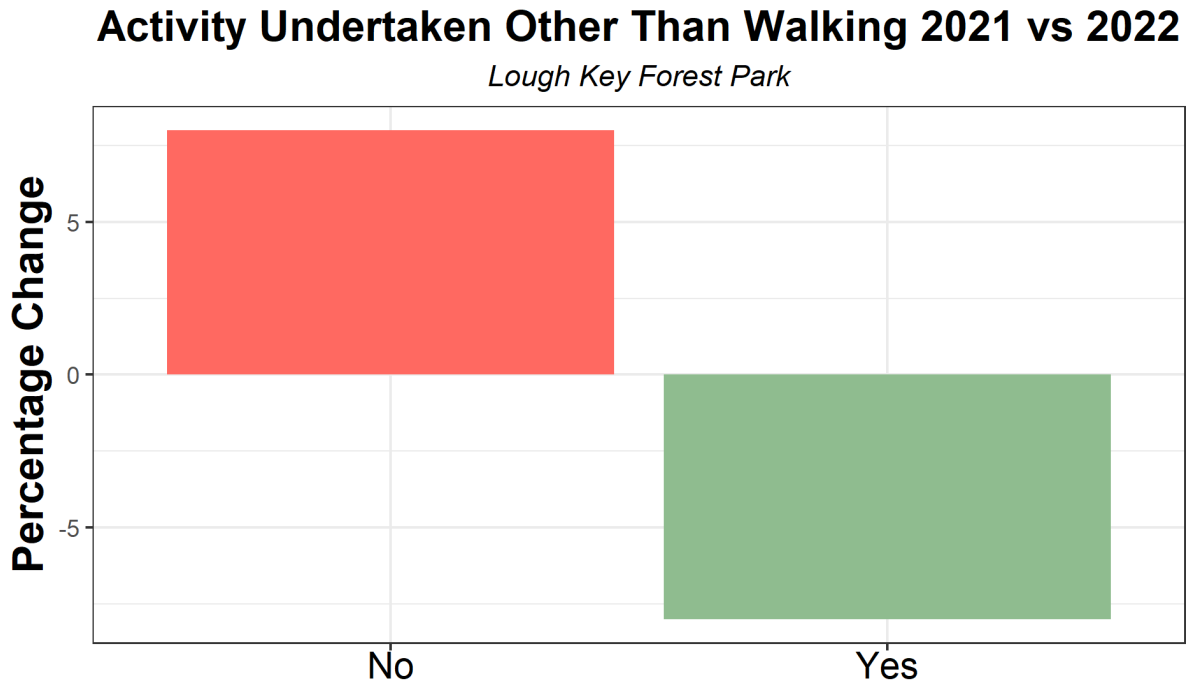


Figure 1.22 Percentage change in activities undertaken other than walking at Lough Key Forest Park between 2021 and 2022

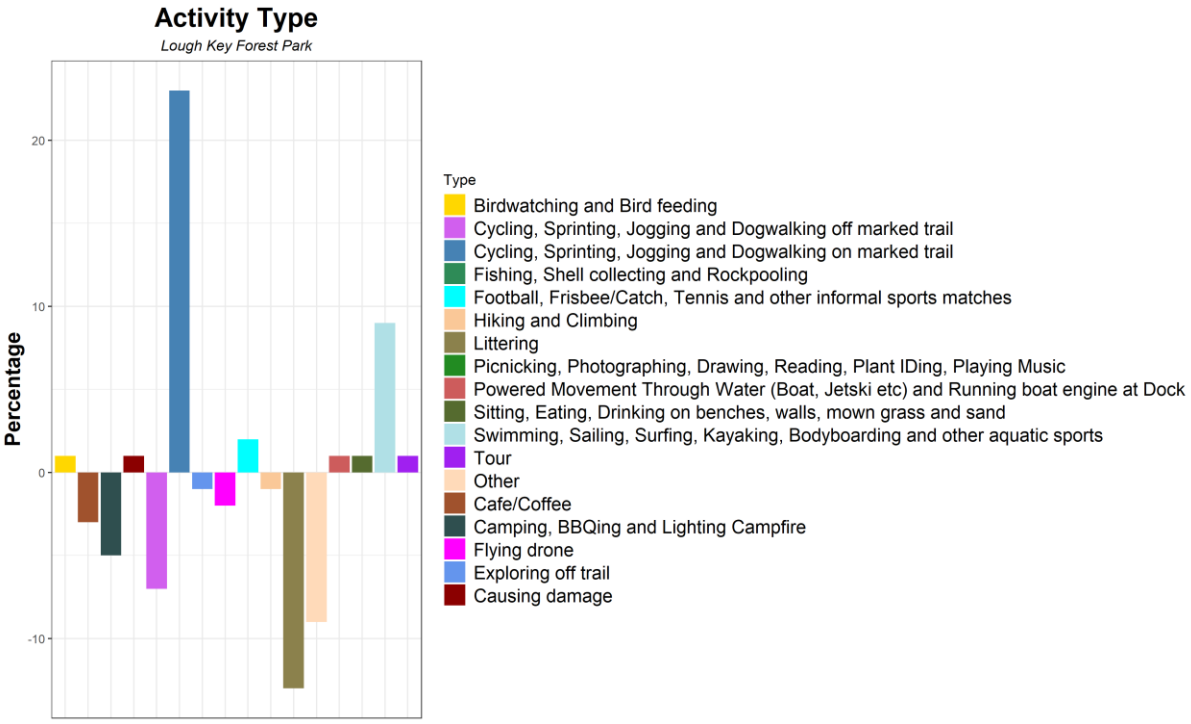


Figure 1.23 Percentage change in range of Visitor Activities Observed at Lough Key Forest Park between 2021 and 2022

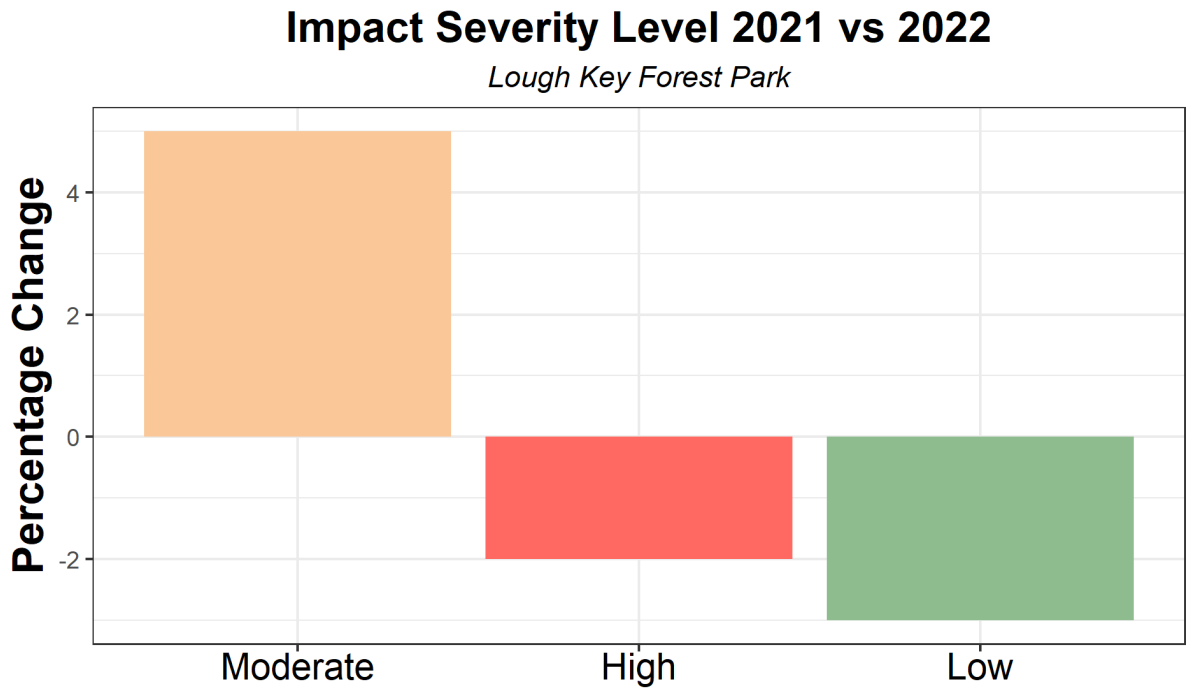


Figure 1.24 Percentage change in categories of Environmental Impact Levels Observed at Lough Key Forest Park as a result of Visitor Activities[6] between 2021 and 2022

[6] Impact severity was measures as a categorical variable which has a range of impact factors that are pre-determined; such as injuring, killing or taking wildlife as a severe impact (high) and temporary disturbance of wildlife being a low impact. These are explained fully in the method section above.

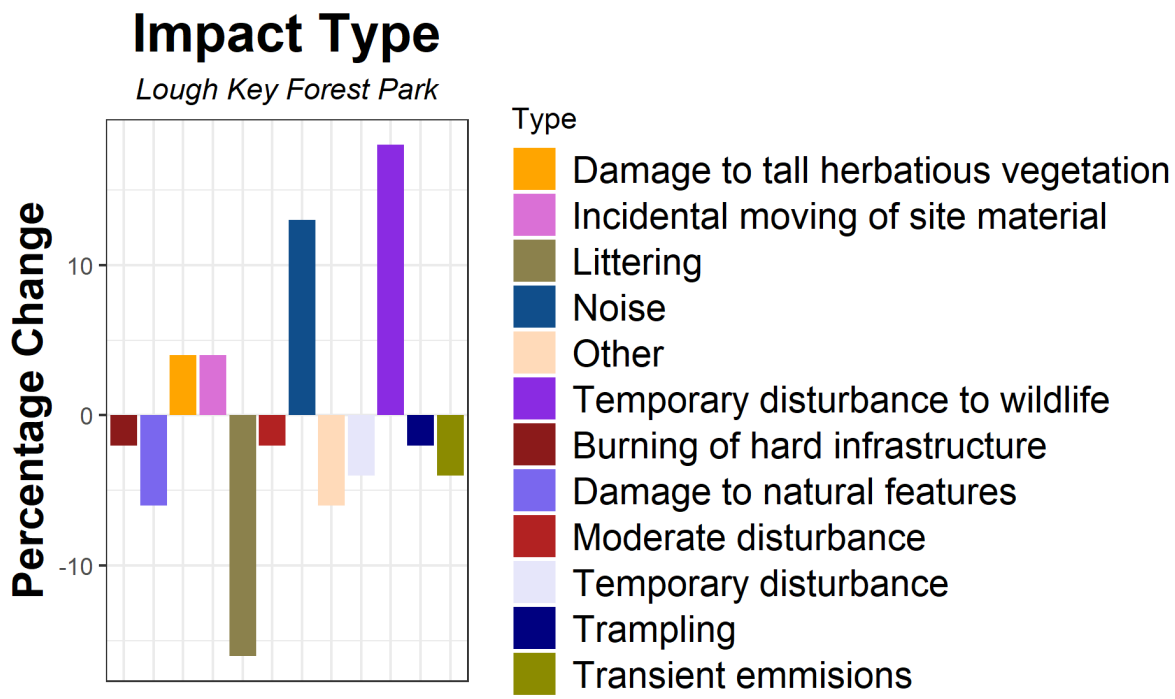


Figure 1.25 Percentage change in range of Environmental Impacts Observed at Lough Key Forest Park between 2021 and 2022

Table 1.4 Summary of changes with previous survey results

Survey	Notable Differences	Comment
Visitor Dwell Time	• Overall average dwell time reduced by 66%	Survey was conducted later in the season compared to 2021 which could lead to a lower average dwell time
Prevalence of Group Type	• 11% increase in families	Slight changes in visitor group types could be attributed to the 2022 survey taking place later in the season
Prevalence of Transport Type	• 10% decrease by foot	Decrease noted in the percentage of visitors arriving to the site by foot Other slight changes could be attributed to the 2022 survey taking place later in the season
Read Available Signage	• Signage not read dropped by 26% • 22% decrease in signage read • 54% increase in no signage available to visitors	Large decrease in percentage of visitors both reading and not reading available signage. However, there is a significant increase in the percentage of visitors who did not have available signage
Activity Levels	• High activity levels increased by 1% • Low activity levels increased by 7% • Moderate activity levels decreased by 8%	No significant changes observed
Activity Undertaken Other Than Walking	• Activities undertaken other than walking decreased by 8%	No significant changes observed
Activity Type	• Jogging, cycling, and dog walking etc. on marked trails increased by 23% • 9% increase in swimming and other aquatic activities	Moderate increase in percentage of activities done on marked trails Increase in percentage of visitors undertaking activities such as swimming

Survey	Notable Differences	Comment
Impact Severity Level	• High impact level decreased by 2% • Low impact level decreased by 2% • Moderate impact level decreased by 5%	No significant changes observed
Impact Type	• 13% increase in noise • 18% increase in temporary disturbance to wildlife • 16% decrease in littering	Lower number of impacts were recorded during 2022 Increase in percentage of impacts relating to noise and temporary disturbance

1.7 Ecological Monitoring Results

1.7.1 Ecological Constraints

There are no EU sites designated within 2km of Lough Key Forest Park, however there are two designated proposed Natural Heritage Areas (pNHAs) with 2km of Lough Key Forest Park.

Table 1.5 Designated sites within 2km of Lough Key Forest Park and relevant ecological receptors

Site Code	Site Name	Distance (km)	Site Type	Qualifying Feature
[001633]	Drumman's Island (Lough Key) pNHA	0.77	pNHA	
[001636]	Fin Lough (Roscommon) pNHA	1.53	pNHA	

1.7.2 Habitat Descriptions

There are a wide variety of habitats at Lough Key Forest Park, with the majority of the area being covered by woodland habitats, specifically mixed broadleaved woodland (Fossitt Code WD1) along with smaller sections of conifer plantations (Fossitt Code WD4) and wet willow-alder-ash woodland (Fossitt Code WN6). As Lough Key is situated in the area, there are also lakeside habitats within Lough Key Forest Park, Lough Key itself is designated as a mesotrophic lake (Fossitt Code FL4) which leads to areas of marshes (Fossitt Code GM1) and reed and large sedge swamps (Fossitt Code FS1).

The visitor monitoring results show that visitors have a high rate of path fidelity on site and the management practices control visitor movements well.

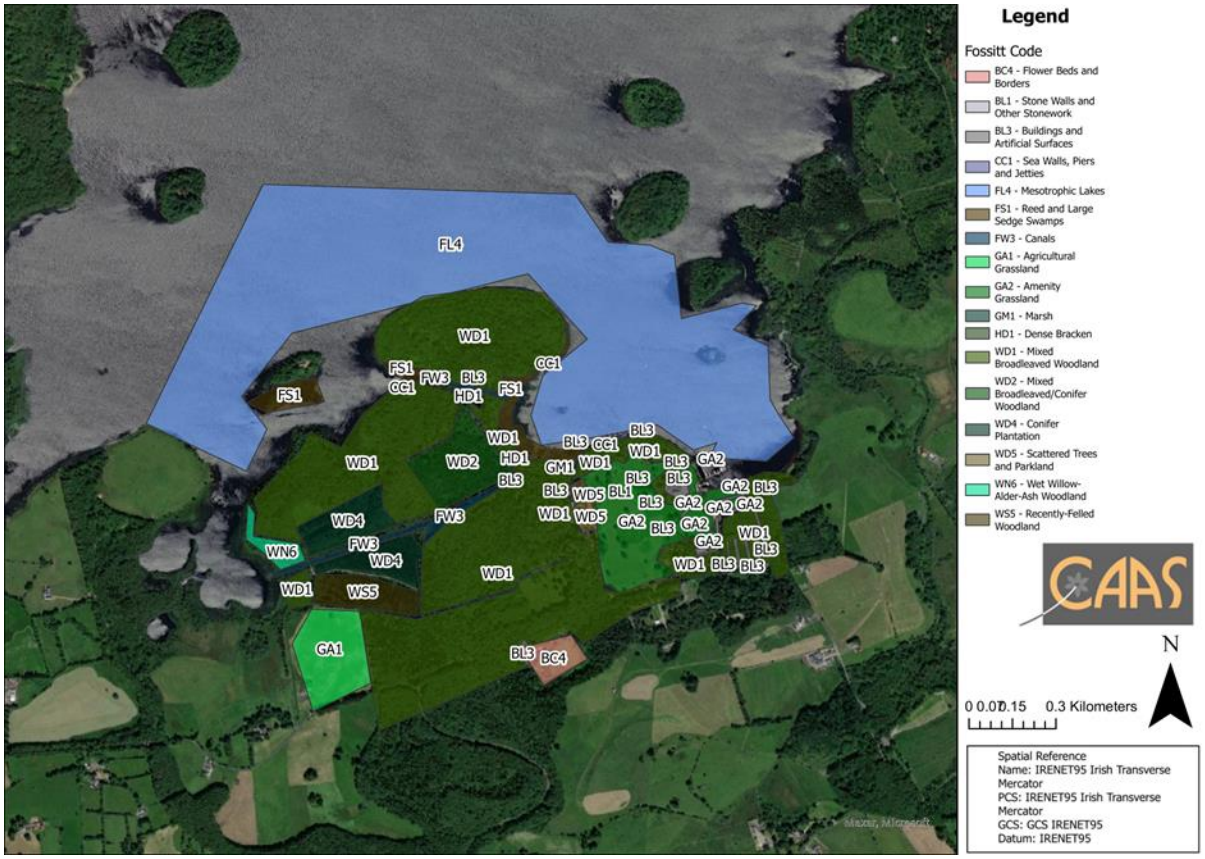


Figure 1.26 Habitats present at Lough Key Forest Park

1.7.3 Condition Assessment

Habitat condition assessments are an integral part of the National Tourism Monitoring Programme. They will allow an assessment of how habitat degradation due to human disturbance may relate to visitor monitoring data gathered at each of the 19 Failte Ireland sites for the duration of the programme.

Each habitat condition assessment will follow a rating scale, that has been designed specifically for this monitoring programme as a standardised, repeatable measurement for assessing habitat condition across all Failte Ireland sites (details on the full methodology are supplied in Appendix II of this report). In order to adequately capture possible changes to habitat condition at each site in relation to tourism activities, the habitat condition assessments will be conducted every second year of the 5-year monitoring programme. Carrying out this condition assessment every second year, creates a sufficient timescale for changes in site condition in relation to visitor movements and activities on site to become apparent, and therefore to be reflected in the resultant data.

The initial habitat condition assessments that will form the baseline for the programme's condition assessments for each of the 19 sites, were carried out in the inaugural year of this programme in 2021. The next year of habitat condition assessment will be conducted in 2023. Each assessments results will be detailed within their relevant year's interim report, with the overall analysis of trends in habitat condition in relation to visitor movements for every site reported in the final year of the monitoring programme in 2025.

1.7.4 NBDC Records of Mammals

The NBDC data shows that there are a large number of terrestrial mammals in the area, this is helped by the woodland habitat and surrounding habitat, of Lough Key Forest Park leading to high observations of species such as red squirrels and badgers, along with other species such as pine martens, foxes, hedgehogs and various bat species.

Table 1.6 List of mammals that have been recorded at NBDC Hectad[7] G80

Group	Common name	Scientific name	Number recorded
Terrestrial mammal	American Mink	*Mustela vison*	3
Terrestrial mammal	Brown Long-eared Bat	*Plecotus auritus*	9
Terrestrial mammal	Brown Rat	*Rattus norvegicus*	1
Terrestrial mammal	Common Pipistrelle	*Pipistrellus pipistrellus*	2
Terrestrial mammal	Daubenton's Bat	*Myotis daubentonii*	49
Terrestrial mammal	Eurasian Badger	*Meles meles*	62
Terrestrial mammal	Eurasian Pygmy Shrew	*Sorex minutus*	1
Terrestrial mammal	Eurasian Red Squirrel	*Sciurus vulgaris*	50
Terrestrial mammal	European Otter	*Lutra lutra*	2
Terrestrial mammal	European Rabbit	*Oryctolagus cuniculus*	1
Terrestrial mammal	Fallow Deer	*Dama dama*	11
Terrestrial mammal	Irish Hare	*Lepus timidus subsp. hibernicus*	4
Terrestrial mammal	Irish Stoat	*Mustela erminea subsp. hibernica*	2
Terrestrial mammal	Lesser Horseshoe Bat	*Rhinolophus hipposideros*	1
Terrestrial mammal	Lesser Noctule	*Nyctalus leisleri*	4
Terrestrial mammal	Natterer's Bat	*Myotis nattereri*	6
Terrestrial mammal	Pine Marten	*Martes martes*	25
Terrestrial mammal	Red Fox	*Vulpes vulpes*	10
Terrestrial mammal	Soprano Pipistrelle	*Pipistrellus pygmaeus*	9
Terrestrial mammal	West European Hedgehog	*Erinaceus europaeus*	10
Terrestrial mammal	Whiskered/Brandt's Bat	*Myotis mystacinus/brandtii*	1
Terrestrial mammal	Wood Mouse	*Apodemus sylvaticus*	2

1.7.5 NBDC Records of Birds

Table 1.7 List of birds that have been recorded at NBDC Hectad[8] G80

Group	Common name	Scientific name	Number recorded
bird	Barn Owl	*Tyto alba*	3
bird	Barn Swallow	*Hirundo rustica*	19
bird	Black-billed Magpie	*Pica pica*	23
bird	Black-headed Gull	*Larus ridibundus*	22
bird	Blackcap	*Sylvia atricapilla*	16
bird	Blue Tit	*Cyanistes caeruleus*	22
bird	Brambling	*Fringilla montifringilla*	1
bird	Chaffinch	*Fringilla coelebs*	28
bird	Coal Tit	*Periparus ater*	13
bird	Common Blackbird	*Turdus merula*	26
bird	Common Bullfinch	*Pyrrhula pyrrhula*	12
bird	Common Buzzard	*Buteo buteo*	5
bird	Common Chiffchaff	*Phylloscopus collybita*	20
bird	Common Coot	*Fulica atra*	10
bird	Common Crossbill	*Loxia curvirostra*	2
bird	Common Cuckoo	*Cuculus canorus*	15
bird	Common Goldeneye	*Bucephala clangula*	4
bird	Common Grasshopper Warbler	*Locustella naevia*	2
bird	Common Kestrel	*Falco tinnunculus*	14
bird	Common Kingfisher	*Alcedo atthis*	6
bird	Common Linnet	*Carduelis cannabina*	5
bird	Common Moorhen	*Gallinula chloropus*	18
bird	Common Pheasant	*Phasianus colchicus*	17
bird	Common Pochard	*Aythya ferina*	8
bird	Common Raven	*Corvus corax*	11
bird	Common Redshank	*Tringa totanus*	1
bird	Common Sandpiper	*Actitis hypoleucos*	2
bird	Common Snipe	*Gallinago gallinago*	12
bird	Common Starling	*Sturnus vulgaris*	21
bird	Common Swift	*Apus apus*	7
bird	Common Tern	*Sterna hirundo*	10
bird	Common Whitethroat	*Sylvia communis*	4
bird	Common Wood Pigeon	*Columba palumbus*	29

[7] 10km^2 grid
[8] 10km^2 grid

Group	Common name	Scientific name	Number recorded
bird	Corn Crake	*Crex crex*	2
bird	Eurasian Collared Dove	*Streptopelia decaocto*	6
bird	Eurasian Curlew	*Numenius arquata*	13
bird	Eurasian Jackdaw	*Corvus monedula*	20
bird	Eurasian Jay	*Garrulus glandarius*	17
bird	Eurasian Siskin	*Carduelis spinus*	5
bird	Eurasian Sparrowhawk	*Accipiter nisus*	15
bird	Eurasian Teal	*Anas crecca*	6
bird	Eurasian Treecreeper	*Certhia familiaris*	14
bird	Eurasian Wigeon	*Anas penelope*	5
bird	Eurasian Woodcock	*Scolopax rusticola*	10
bird	European Goldfinch	*Carduelis carduelis*	15
bird	European Greenfinch	*Carduelis chloris*	4
bird	European Robin	*Erithacus rubecula*	30
bird	Fieldfare	*Turdus pilaris*	1
bird	Goldcrest	*Regulus regulus*	24
bird	Great Cormorant	*Phalacrocorax carbo*	9
bird	Great Crested Grebe	*Podiceps cristatus*	14
bird	Great Spotted Woodpecker	*Dendrocopos major*	3
bird	Great Tit	*Parus major*	17
bird	Grey Heron	*Ardea cinerea*	15
bird	Grey Partridge	*Perdix perdix*	1
bird	Grey Wagtail	*Motacilla cinerea*	14
bird	Hedge Accentor	*Prunella modularis*	10
bird	Hen Harrier	*Circus cyaneus*	3
bird	Herring Gull	*Larus argentatus*	1
bird	Hooded Crow	*Corvus cornix*	15
bird	House Martin	*Delichon urbicum*	10
bird	House Sparrow	*Passer domesticus*	11
bird	Lesser Black-backed Gull	*Larus fuscus*	5
bird	Lesser Redpoll	*Carduelis cabaret*	5
bird	Little Grebe	*Tachybaptus ruficollis*	20
bird	Long-eared Owl	*Asio otus*	2
bird	Long-tailed Tit	*Aegithalos caudatus*	14
bird	Mallard	*Anas platyrhynchos*	27
bird	Meadow Pipit	*Anthus pratensis*	7
bird	Mew Gull	*Larus canus*	8
bird	Mistle Thrush	*Turdus viscivorus*	18
bird	Mute Swan	*Cygnus olor*	26
bird	Northern Lapwing	*Vanellus vanellus*	9
bird	Peregrine Falcon	*Falco peregrinus*	1
bird	Pied Wagtail	*Motacilla alba subsp. yarrellii*	2
bird	Red-breasted Merganser	*Mergus serrator*	1
bird	Redwing	*Turdus iliacus*	2
bird	Reed Bunting	*Emberiza schoeniclus*	9
bird	Ringed Plover	*Charadrius hiaticula*	4
bird	Rock Pigeon	*Columba livia*	5
bird	Rook	*Corvus frugilegus*	23
bird	Sand Martin	*Riparia riparia*	5
bird	Sedge Warbler	*Acrocephalus schoenobaenus*	2
bird	Short-eared Owl	*Asio flammeus*	2
bird	Sky Lark	*Alauda arvensis*	11
bird	Song Thrush	*Turdus philomelos*	21
bird	Spotted Flycatcher	*Muscicapa striata*	7
bird	Stock Pigeon	*Columba oenas*	1
bird	Stonechat	*Saxicola torquata*	4
bird	Tree Pipit	*Anthus trivialis*	1
bird	Tufted Duck	*Aythya fuligula*	9
bird	Water Rail	*Rallus aquaticus*	1
bird	White-throated Dipper	*Cinclus cinclus*	7
bird	White Wagtail	*Motacilla alba*	11
bird	Whooper Swan	*Cygnus cygnus*	7
bird	Willow Warbler	*Phylloscopus trochilus*	13
bird	Winter Wren	*Troglodytes troglodytes*	25
bird	Yellowhammer	*Emberiza citrinella*	3

1.8 Recommendations

- Littering remains an impact on site and a stronger litter management process is needed for Lough Key Forest Park.
- In general, the site is both well managed and ecologically diverse. The introduction of interactive signage related to the biodiversity and ecology on site as well as nature related education events could potentially increase visitor experiences on site.

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[9]. 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.

[9] 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.