

# **AN RATH-CAHERMORE SITE ASSESSMENT REPORT**



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**(Updated February 2015 to include Visitor Surveys data)**



# CONTENTS

Page No.

<b>1. Site Description</b>	<b>1</b>
1.1. Location	1
1.2. Land Designations	2
1.3. Features of Visitor Interest	3
1.3.1. Built Heritage	3
1.3.2. Natural Heritage	4
<b>2. Site Condition</b>	<b>7</b>
2.1. Access	7
2.1.1. Approach road	7
2.1.2. Directional Signage	7
2.1.3. Parking	7
2.1.4. Site Entry	10
2.2. Visitor Facilities	11
2.2.1. Recreational Facilities	11
2.2.2. Interpretation	11
<b>3. Current Visitor Use of Site and Resulting Impacts</b>	<b>13</b>
3.1. Visitor Numbers	13
3.2. Visitor Attitude Survey	13
3.3. Visitor Observations Studies	14
3.4. Ecological Study of Visitor Movement	15
3.5. Conclusions: Site Recreational Pressure Points	16
3.6. Community Consultation	17
<b>4. Site Management</b>	<b>19</b>
4.1. Archaeological Monuments	19
4.2. Roadside Parking	19
<b>5. Conclusions and Recommendations</b>	<b>20</b>
<b>Appendix I: Moneen Mountain SAC Site Data</b>	<b>21</b>
<b>Appendix II: Visitor Attitudes Survey</b>	<b>23</b>
<b>Appendix III: Visitor Observation Study</b>	<b>25</b>

## 1. SITE DESCRIPTION

### 1.1. LOCATION

The GeoparkLIFE demonstration site of An Rath-Cahermore is situated in Zone 2 (the central zone) as defined by this project. This zone attracts informed tourists who take an active interest in the heritage of the area. The demonstration site consists of two separate archaeological monuments located in the townland of Ballyallaban. An Rath is a medieval earthen ringfort, while Cahermore is a medieval stone fort. The distance between the monuments is approximately 0.6km. Both monuments are located on the west side of the regional road R480 and are separated by two pasture fields. An Rath, the most northerly monument is located approximately 3km south of Ballyvaughan.

The R480 route runs through the centre of the Burren and has an array of prominent attractions and natural and cultural heritage sites along its length. The route is used by coach tours and individual travellers, mainly travelling by car. In addition to An Rath and Cahermore, the archaeological sites along this route include Poul nabrone and Carran Church, both of which are also GeoparkLIFE demonstration sites. The visitor centres of Aillwee Cave (a GeoparkLIFE demonstration site) and Caherconnell visitor centre, which consists of a medieval stone fort and a demonstration sheep farm are also located along this route.



Figure 1: Location map. Red dot indicates location of An Rath- Cahermore demonstration site

## 1.2. LAND DESIGNATIONS

The land surrounding and including the monument of An Rath is non-designated in terms of natural heritage.

The monument of Cahermore is located within Moneen Mountain SAC (Site Code: 000054). The site description for this SAC is contained in Appendix I.

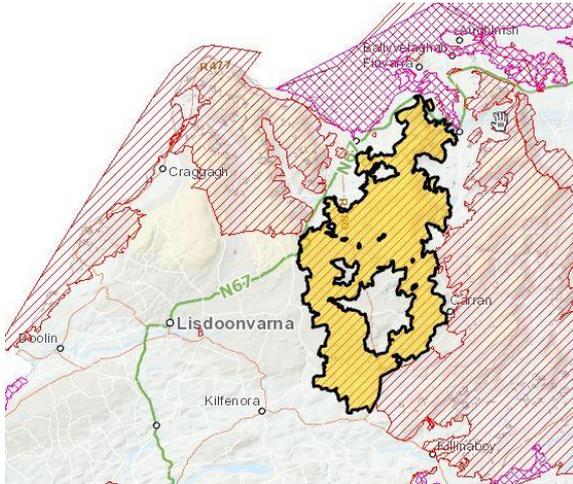


Figure 2: Moneen Mountain SAC designated in Yellow. Other SACs in red.

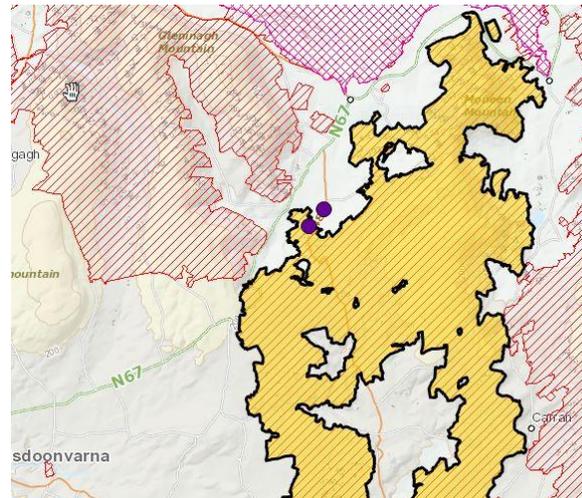


Figure 3: Position of monuments (denoted by purple circles) in relation to SAC boundary.

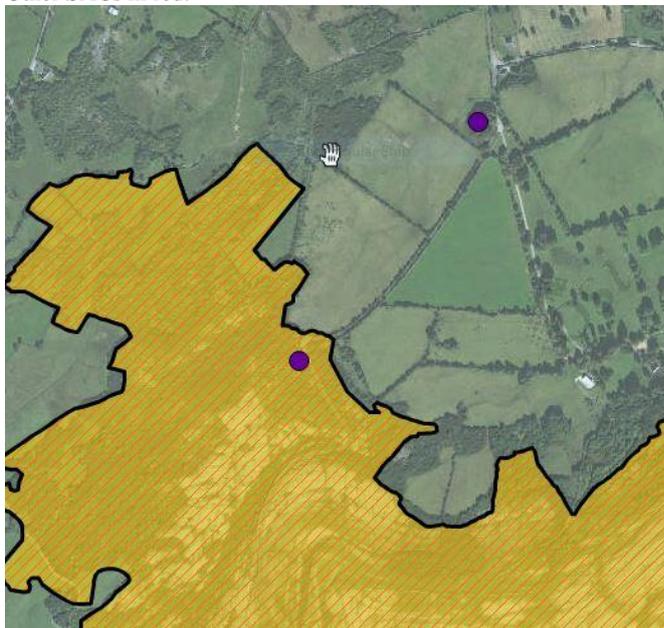


Figure 4: Location of An Rath and Cahermore monuments (denoted by purple circles) in relation to Moneen Mountain SAC. An Rath is the most northerly monument, while Cahermore is located within the SAC boundary.

Both Monuments are designated National Monuments in State Care and are managed by the Office of Public Works (OPW), Department of Arts, Heritage and the Gaeltacht. They are both recorded monuments on the National Monuments Service Record of Monuments and Places.

## 1.3 FEATURES OF VISITOR INTEREST

### 1.3.1. Built Heritage

An Rath is considered to be a medieval earthen ringfort, although no excavation has taken place on this site. Ringforts, which are single protected homesteads, are the most common class of archaeological monument in Ireland. They can date from the Bronze Age to the late Medieval, with the majority belonging to the Early Medieval Period. There may be as many as 450 ringforts on the Burren (Jones, C. 2004) although the majority are surrounded by circular stone walls as opposed to earthen banks and are referred to as *cahers*.

An Rath is a well-preserved ringfort, enclosed by a large single steep earthen bank of approximately 2m internally and up to 4.7m externally to the South-west. Situated on a slightly raised area it has commanding views except to the south and southwest. A gap in the north-east section of the bank, of approximately 1m in width, provides access to the central area (lios). A second gap in the bank occurs in the North-west. A mature stand of Beech trees grows on top of the bank. A flat bottomed deep outer ditch (fosse) surrounds the bank. The fosse can become waterlogged during the wetter seasons of the year. The central lios is approximately 37m in diameter and there are the foundations of a rectangular structure in the south-west quadrant. There is no historical data available for this site and without archaeological excavation it is impossible to date it accurately or know anything of its occupation.

Cahermore is a medieval stone fort or *caher*. It is located at a slightly higher elevation than An Rath and is on limestone pavement. It is enclosed by two concentric walls approximately 30-45m apart with radial walls extending from the inner to the outer wall at the north-west, west and south-west. The inner wall is up to 2-3m in thickness and is built of two faces of fitted blocks with rubble stone centre. It encloses the lios which is approximately 50m in diameter. Within the inner lios are the foundations of several structures. In the south, close to the inner wall, are the remains of a sub rectangular building. A possible hut site, consisting of a number of grass covered stones, is located in the north of the lios. The collapsed remains of a possible two rectangular enclosures are located against the wall in the north-west. The outer concentric walls of the caher are less substantial than the inner and are largely collapsed and hidden by hazel scrub. A lintelled stone and mortared gateway (width 1.6m), with a single small chamber at each side, provides entrance to the interior of the caher from the east. This gateway was excavated in June 1999 following the collapse of the lintel. The excavation revealed that the structures around the entrance were a 14<sup>th</sup>/15<sup>th</sup> century addition to the pre-existing fort. A scallop shell from below the foundations was radiocarbon dated to AD 1308. The lintel was replaced and the entranceway consolidated in 2001. In recent years the OPW installed a wooden viewing platform in the west section of the fort which provides a view over the Ballyvaughan valley.



Photo 1: Reconstructed medieval gateway at Cahermore

### 1.3.2. Natural Heritage

An Rath ringfort is surrounded by agricultural fields of improved grassland which are grazed by cattle and enclosed by low stone walls and hedgerows of hawthorn and briar. A treeline of hawthorn, briar, ash and hazel separates the fields from the R480 road.



Photo 2 : Eroded entrance to the centre of An Rath

The interior of the ringfort contains an irregular covering of grass which is maintained short by cutting. The fosse contains water at certain times of the year and it supports some wetland species including locally abundant reedmace (*Typha latifolia*) and willow herb (*Epilobium hirsutum*). The outer banks of the ringfort which slope into the fosse support a damp habitat inhabited by ferns, mosses and several woodland flowers.

A treeline of mature Beech (*Fagus sylvatica*) trees grows on the top of the earthen enclosing bank of the ringfort. The trees are approximately 150 years old. It is likely that these were planted by a local landowner creating a landscape feature of the ringfort.

Due to visitor footfall the entrance to the interior of the ringfort and the top of the surrounding bank have been badly eroded and are generally devoid of vegetation. The roots of the trees are exposed along the enclosure bank due to this visitor pressure.



Photo 3: Exposure of tree roots due to footfall pressure on enclosing bank of An Rath

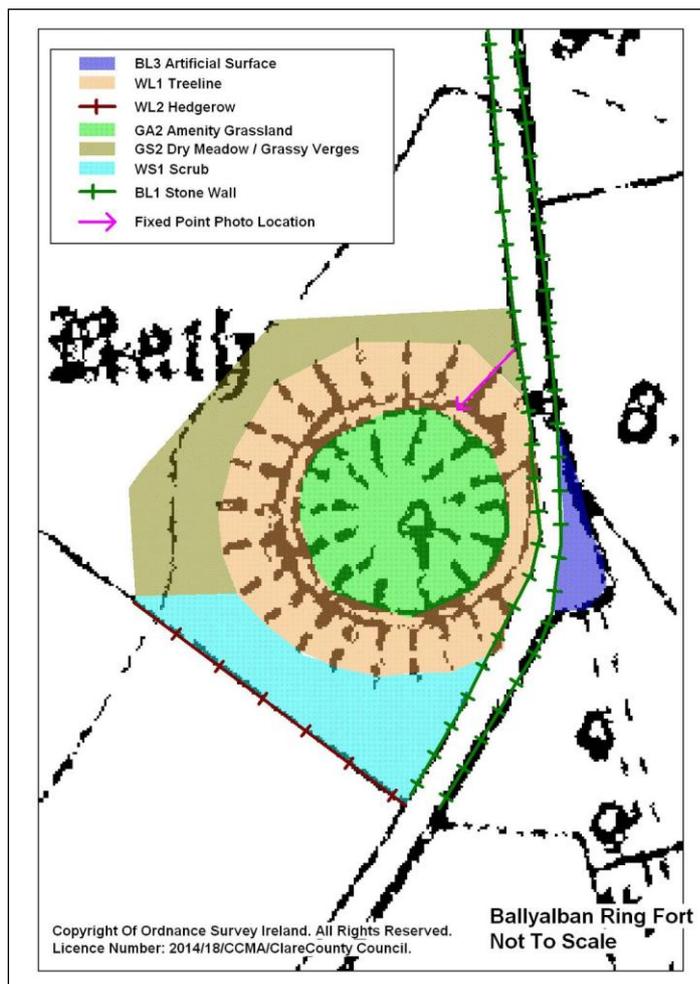


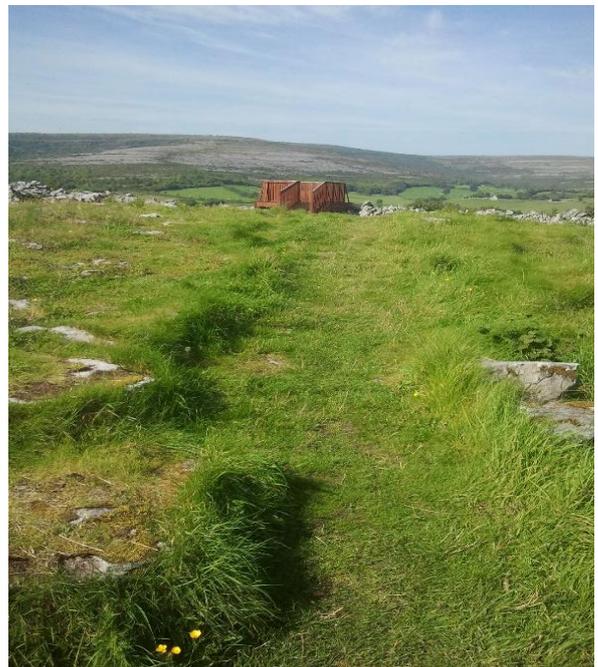
Figure 5: Habitat Map of An Rath, Ballyalban (EirEco Ecological Consultants 2014) produced for GeoparkLIFE

Cahermore is located on limestone pavement with a shallow soil covering. The site is surrounded by hazel scrub interspersed with ash and holly and rock outcrops. The interior of the monument supports dry calcareous grassland, briars and hazel scrub. The grass is regularly cut and the hazel scrub has been cut back in recent months.



Photo 4: Vegetation cover in the interior of Cahermore

.Photo 5: Grass worn path through interior of Cahermore from entrance gate to viewing platform.



## 2. CURRENT SITE CONDITION

The demonstration site of An Rath-Cahermore is located adjacent to the busy tourism route, the R480 road which passes through the centre of the Burren. Attractions along this route include Aillwee Cave Visitor Centre, Poul nabrone portal tomb, Caherconnell Visitor Centre and Carran Medieval Church.

### 2.1. Access

#### 2.1.1. Approach Road

The R480 is located approximately 1.5km south of Ballyvaughan, as a branch off the N67. An Rath is located approximately 1km south of this point and Cahermore is a further 0.6km south.

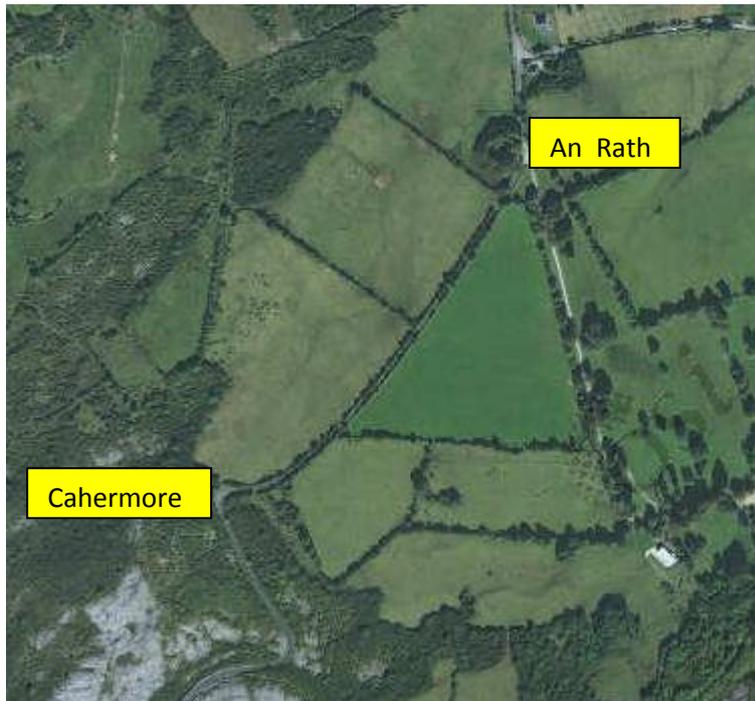


Figure 5: Aerial view of An Rath-Cahermore site

#### 2.1.2. Directional Signage

There is no directional or site signage to either of the monuments of An Rath or Cahermore.

#### 2.1.3. Parking

There is no official parking area for either monument. Visitors to An Rath generally park on the hard shoulder opposite the site, in an area which is part of a private entrance area to a residential house. Approximately three cars or one coach can park in this area at any one time, but may cause obstruction to the house entrance gateway.



Figure 6: Aerial view of An Rath with coach parked opposite the site, on hard shoulder in front of private entrance.



Photo 6: Hard shoulder outside private entrance gate opposite An Rath..

The entrance to the Cahermore monument is located on a sharp bend in the road. There is a small gravelled hard shoulder area directly outside the entrance stile to the site. This area can accommodate up to three cars or one coach.



Figure 7: Aerial view of Cahermore with vehicle parked on hard shoulder of sharp road bend adjacent to stile entrance to site.



Photo 7: Unofficial hard shoulder parking area outside roadside entrance to Cahermore.

#### 2.1.4. Site entry

An Rath and Cahermore are both designated National Monuments with free public access.

Visitors access An Rath by climbing over a two-step wooden stile into the north-east of the site. They then can pass through the gap in the earthen bank to the interior of the fort. The site entrance is located on a winding corner and visibility is limited for visitors crossing the road.



Photo 8: Entrance to An Rath from the R480



Photo 9: Two-step stile entrance from R480 into An Rath

Cahermore is located on a very sharp almost 90<sup>0</sup> bend in the road. Traffic approaching from the north must cross the road to the hard shoulder to park. As they do this they are not visible to approaching traffic from the south as the sightlines are too tight.



Photo 10: Sightline looking south on R470 from hard shoulder at Cahermore



Photo 11: Narrow gap entrance from hard shoulder to Cahermore site

## 2.2. Visitor Facilities



Photo 12: Viewing Platform at Cahermore

### 2.2.1. Recreational Facilities

The only recreational facility provided at either site is a wooden viewing platform in the interior of Cahermore. It provides the visitor with a commanding view over the Ballyvaughan Valley.

### 2.2.2. Interpretation

The only interpretation provided at An Rath is a standard notice stating that the site is a National Monument under State Care. No information is provided as to the origins, uses or significance of the monument.

A standard OPW lectern style interpretive panel is located close to the medieval entrance gateway into the interior of Cahermore. The text is bilingual (Irish and English) and provides a brief account of the date, function and structure of the monument with line illustrations of the original gateway and an aerial plan of site. The text and illustrations are faded and the panel needs updating.



Photo 13: Interpretive panel at Cahermore

### 3. CURRENT VISITOR USE OF SITE AND RESULTING IMPACTS

In September 2014, a number of GeoparkLIFE initiatives were undertaken to provide baseline data on visitor numbers at each of the demonstration sites and to develop a methodology to determine how visitors' behaviour is impacting on the natural and built heritage of sites. Previous to this baseline information was either non-existent or very sporadic.

#### 3.1. Visitor Numbers

'Buses in the Burren 2014 – A study of the Impacts and Issues' (Saunders, J. 2015) a study commissioned by the Burren & Cliffs of Moher Geopark indicates that an estimated 45,000 visitors were brought to An Rath by coach in 2014. This estimate is based on (a) 3 days of counting across seasons for this study and (b) analysis of day trip bus figures.

As part of this study the access routes and direction of travel of buses in the Burren was determined for July 17, 2014 by undertaking a driver/guide survey at the Cliffs of Moher and combining the results with data from a Clare County Council Road Traffic Census carried out on the same day. The results showed that 48 buses travelled along the R480 on this day (10 public day trips, 38 private tours).

Through the GeoparkLIFE initiative a footfall counter was installed inside the stile entrance to An Rath and inside the stile entrance from the road at Cahermore in on September 11, 2014 to measure visitor numbers and times of visit. The following numbers were recorded between September 11, 2014 and February 13, 2015:

	<b>An Rath</b>	<b>Cahermore</b>
Month	Numbers Recorded	Numbers recorded
September 2014	1735	421
October 2014	1893	574
November 2014	683	325
December 2014	548	449
January 2015	520	483
February 2015	838	114
Total (11-9-14 to 13-2-15)	6,217	2,366

Table 1: Data recorded by footfall counters at demonstration site September 2014 – February 2015

Footfall counter data will be collected and analysed by GeoparkLIFE staff throughout the duration of the project and shared with the site managers and other relevant partners.

#### 3.2. Visitor Attitudes Survey

A Visitor Survey was conducted at An Rath between 5<sup>th</sup> September and 11<sup>th</sup> October 2014 as part of a wider survey of the GeoparkLIFE demonstration sites by Millward Brown Ltd. Surveyors were placed at the parking area opposite An Rath and inside the caher at Cahermore. 42 people were interviewed at An Rath and 34 at Cahermore. The purpose of this survey was to record visitors' attitudes to the infrastructure at these sites and to the Burren.

The results for An Rath indicate that:

- 2% of visitors interviewed gave a rating of between 8-10 for signposting to the site (1 being poor and 10 high):
- 50% rated physical entry between 8 and 10
- 43% rated parking facilities between 8 and 10

- 57% arrived by car to the site; 26% on coach day tour; 5% on a guided coach tour and 7% on a private chauffeur tour.
- 21% noticed the information; 67% read them entirely and 11% partially; of those that read the boards 14% felt that they added to their understanding of the Burren.
- 19% were very satisfied with the site and 76% were satisfied.

The results for Cahermore indicate that:

- 6% of visitors interviewed gave a rating of between 8-10 for signposting to the site (1 being poor and 10 high):
- 83% rated physical entry between 8 and 10
- 47% rated parking facilities between 8 and 10
- 54% arrived by car to the site; 15% on coach day tour; 6% on a guided coach tour and 6% on a private chauffeur tour.
- 97% noticed the information; 64% read them entirely and 6% partially; of those that read the boards 94% felt that they added to their understanding of the Burren.
- 62% were very satisfied with the site and 35% were satisfied

The full results of the interviews at both An Rath and Cahermore are contained in Appendix II.

### 3.3. Visitor Observation Studies

Two sets of Visitor observations were carried out at Cahermore in September 2014 to determine visitor movement around the site and how visitor behaviour is impacting on the site.

- On the 6 September 2014 visitor observations were undertaken as part of the CAAS Ltd.<sup>1</sup> study to assist GeoparkLIFE to develop a survey methodology for assessing environmental impacts at the demonstration sites. Seven visitors were observed during this exercise. The results indicate that
  - 100% of visitors arrived by car
  - Low level activities<sup>2</sup> were undertaken by all visitors (resting, reading, picnicking, sightseeing)
  - No impacts on the site were observed
- On 9 September 2014 visitor observations were carried out by GeoparkLIFE at Cahermore as part of the site appraisal which is the basis of this report, using the methodology employed by CAAS Ltd. Observations were made from 9.30am to 4.30pm. Ten visitors were observed at the site during this time.

The results indicate that:

- Mode of transport used was Car 64%; Push bike 27%; Motorbike: 9%
- Average time spent at the site was 19 minutes
- Average time reading information boards – 1 minute 25 seconds
- Low level activities undertaken were walking (35%) photography (27%) viewing landscape (18%) picnicking (9%)

<sup>1</sup> CAAS Ltd. 2015 'Pilot Visitor Observation Studies of Environmental Impacts at the Burren & Cliffs of Moher Geopark, Co. Clare'.

<sup>2</sup> Activities categorisation: Low Level – activity for which the site was intended; Medium Level – activities, often incidental, depending on site management whereby the visitor engages in behaviour that may result in an effect; High Level – Activity where visitors engage in behaviour that is likely to have an effect on the site but may not be directly linked to a high impact.

- Observed Impacts were 1 Car parked on grass verge ;1 couple went off designated trail to sit on rock (approx. distance 20m); 2 Walking on walls; 1 using site as toilet stop.  
(The completed observation sheet is contained in Appendix III)

### 3.4. Ecological Study of Visitor Movement

Baseline habitat mapping was carried out in May and September 2014 as part of the *'Buses in the Burren 2014 – A study of the Impacts and Issues'* (Saunders, J. 2015) to determine the impact or vulnerability of the impact of bus stop-over activity on the ecological environment. An Rath was one of the locations assessed. The An Rath site was rated as *'Localised degree of negative impact, but slight and capable of rapid recovery (Fair condition)'*

As part of the CAAS Visitor Observation Study, EirEco Environmental Consultants were commissioned to carry out vegetation monitoring at the GeoparkLIFE demonstrations sites between October 21, 2014 and December 2, 2014. Vegetation was analysed in 1m<sup>2</sup> quadrats at pre-selected locations identified by CAAS in each site. Four quadrat surveys were conducted at the Cahermore site as illustrated in Figure 8. A quadrat survey was not conducted at An Rath.



Figure 8 : Ecological survey quadrat locations Cahermore

The following is an extract from the ecological survey report for Cahermore and An Rath demonstration site (EirEco 2014):

*'The habitat surrounding Cahermore is primarily hazel scrub while within the ringfort is open grassland habitat. The grassland is maintained by strimming and was cut shortly before the survey was undertaken. There is a well compacted desire line from the entrance in the eastern side of the*

*ringfort towards the wooden viewing platform which is located on the opposite side of the fort. Because of the ringfort walls and the surrounding hazel scrub, few visitors appear to move outside of the enclosure and there is no evidence of impact on the surrounding vegetation.*

*At An Rath there is a well defined pathway around the top of the earthen mound which is devoid of vegetation but is being contained by the exposed roots of the mature beech trees that line the ringfort. While the roots are showing some signs of surface damage, this is superficial and will not impact on the longevity of the trees. The vegetation within the ringfort is of low species diversity due to the heavy shade and is also mown regularly by the OPW. The vegetation surrounding the ringfort consists of a wetland community in the peripheral ditch with scrub adjacent scrub. These show no evidence of impact.'*

### **3.5. Conclusions: Site Appraisal of Recreational Pressure Points**

During the field survey, visitor observations and discussion with site managers undertaken as part of this site appraisal the following recreational pressures at the site were identified:

#### An Rath

- The current roadside parking at the site is inadequate and dangerous
- There is a serious health and safety issue with regard to visitors crossing the road to enter the site from unofficial parking on the hard shoulder, as sightlines are inadequate and up to 45 people can be crossing at any one time if a coach tour is visiting the site. As the site is on a very busy tour route a number of coaches can visit this site in any one day.
- Due to the design of the two step stile entrance to the site, there are physical access limitations for the less abled bodied visitors.
- The erosion of the embankment enclosing the interior of the fort due to footfall appears to have increased in recent years and could cause serious damage to the monument if allowed to continue. Damage is also being caused to the ecology of the site due to this visitor pressure.
- At present the site is not signposted or interpreted for the visitor.

#### Cahermore

- Due to the lack of an official parking area, the hard shoulder area outside the entrance is in use and due to its location on a sharp bend with lack of adequate sightlines it poses a serious Health and Safety issue.
- There are physical access limitations to the site due to the narrow entrance gap in the stone wall
- The on-site interpretive panel is faded and provides very superficial interpretation of the monument.
- The provision of the viewing platform in the caher interior appears to attract the visitor to walk directly across the site from the medieval entrance gate. This is creating a worn grass pathway but is lessening a wider dispersal impact of visitors on the vegetation of the monument interior.

### **3.6. Community consultation**

Negotiations have been undertaken by the GeoparkLIFE team with the landowner of the agricultural land between An Rath and Cahermore to determine the possibility of the purchase of this land to develop a car/coach park between the two monuments with interconnecting pathways to each monument. This proposed plan would

- alleviate the current parking pressures at An Rath
- eliminate the current health and safety issues associated with current parking patterns and visitors crossing the road where sightlines are inadequate
- create awareness of the two monuments and their historical and archaeological significance
- and increase visitor numbers to Cahermore.

Detailed, scaled drawings for the proposal are currently being prepared with the view of seeking planning permission for the project. The landowner has agreed to discuss possible sale of the land if planning permission is obtained. Preliminary drawings are illustrated below.



## **4. SITE MANAGEMENT**

### **4.1. Archaeological Monuments**

Both archaeological monuments of An Rath and Cahermore are designated National Monuments in State Care and are managed by the Office of Public Works, Department of Arts, Heritage and the Gaeltacht.

They are both recorded monuments on the Record of Monuments and Places (RMP) compiled by the National Monuments Section of the Department of Arts, Heritage and the Gaeltacht. Section 12 (3) of the National Monuments Act provides for the protection of the monuments and places included in the record. The National Monuments Service (NMS) of the Department of the Arts, Heritage and the Gaeltacht advise on the protection applying to recorded monuments.

### **4.2. Roadside Parking**

The R480 is a designated Regional Road and as such has speed limit of 80km per hour. Clare County Council is responsible for the management of this road.

## 5. CONCLUSIONS AND RECOMMENDATIONS

ISSUES	RECOMMENDED ACTIONS
Due to the lack of parking facilities at this site visitors park along the hard shoulder of the R480 road at each site. This is a serious health and safety issue due to the limited sightlines available at each site. Dangers arise where visitors cross the road to enter An Rath and vehicles from the north must cross the road to park on the hard should at Cahermore.	Pursue action of developing car/coach park between both sites with off road access from this park to each monument.
Both sites present physical access limitations for the less abled visitor, due to the two step stile entry to An Rath and the very narrow stone gap entrance to Cahermore.	Develop universal design access to each site from new parking area
Visitor footfall pressure is creating erosion of the earthen bank at An Rath resulting in removal of vegetation and exposure of tree roots.	Carry out ecological and archaeological survey to inform proposed planning of new access system.
There is no interpretation of the site available at An Rath. Interpretation provided at Cahermore is limited and in need of upgrading.	Provide good interpretation of both sites within new access proposals and include message on environmental and archaeological sensitivities of the site to influence visitor behaviour.
There is no directional signage at either site. Visitor numbers to An Rath would appear to have increased in recent years due to increased coach tourism along this touring route but Cahermore receives very few visitors.	Direct visitors to both sites from new parking area.

## APPENDIX 1

### Moneen Mountain SAC Site Data ([www.npws.ie](http://www.npws.ie))

Moneen Mountain SAC encompasses a complete range of inland Burren habitats, from open limestone pavement and its associated calcareous grasslands and heaths, to dense Hazel (*Corylus avellana*) scrub and patches of Ash (*Fraxinus excelsior*) woodland. The site extends inland from Muckinish Point and includes all of the higher ground between Ballyvaughan and Bell Harbour in a southerly direction for approximately 20 km. The underlying rock type is Carboniferous limestone, which rises into a series of rounded hills, intersected by deep and often steep-sided valleys to the north of the site (max. altitude 307 m) before levelling out towards the south. Traces of Galway Granite are found within the site, particularly to the north. Soil cover is shallow and the soil type most common in the area is rendzina. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (\* = priority; numbers in brackets are Natura 2000 codes):

[3180] Turloughs\*

[4060] Alpine and Subalpine Heaths

[5130] Juniper Scrub

[6210] Orchid-rich Calcareous Grassland\*

[7220] Petrifying Springs\*

[8240] Limestone Pavement\*

[1065] Marsh Fritillary (*Euphydryas aurinia*)

[1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*)

The bulk of the site is made up of limestone pavement, a priority habitat listed on Annex I of the E.U. Habitats Directive and its associated calcareous grasslands, juniper scrub and heaths. The limestone pavement includes smooth, blocky and shattered types. Common species typically associated with the shattered type include Burnet Rose (*Rosa pimpinellifolia*), Wood Sage (*Teucrium scorodonia*), Blue Moor-grass (*Sesleria albicans*), Blackthorn (*Prunus spinosa*) and Wild Thyme (*Thymus praecox*). The smooth, blocky type is deeply fissured and provides a good habitat for a variety of ferns and mosses. The bare pavement is interspersed with fine examples of species-rich dry calcareous grassland. On the higher ground of the uplands to the north and north-east of the site, heath with Bearberry (*Arctostaphylos uva-ursi*) is well developed. The main plants of the heath communities are Mountain Avens (*Dryas octopetala*), Heather (*Calluna vulgaris*), Crowberry (*Empetrum nigrum*), Blue Moorgrass, Juniper (*Juniperus communis*) and sedges (*Carex* spp.). Petrifying springs, a priority habitat listed on Annex I of the E.U. Habitats Directive, occurs within the site. Although the area covered by the petrifying springs is relatively small, the habitat is nonetheless important. The springs are generally intact in nature at this site, and often support a rich bryophyte community. They are often found in secluded and inaccessible areas such as inland cliffs, where disturbance is minimal. Expanses of low Hazel scrub interspersed with bare limestone pavement and calcareous grasslands dominate much of the southern part of the site. Along the lower slopes of some of the hills to the north, Hazel and Ash have reached a sufficiently significant height to be considered as woodland, a rare habitat in the context of the Burren. Many inland cliffs occur throughout the site, generally unvegetated but in places supporting a thick scrub cover with Hazel, Ivy (*Hedera helix*), Blackthorn and wild roses (*Rosa* spp.). These provide good sites for small breeding birds. Exposed outcrops of granite support a rich lichen flora. Muckinish Lough, which occurs close to Pooldoody Bay, is a small but important example of a turlough. This appears to be a transitional system from a turlough to a natural rock lagoon in karst. It receives seawater that probably enters through fissures in the

limestone. The lake becomes very shallow in summer and may dry out completely at times. Aquatic vegetation includes Tassleweed (*Ruppia* spp.) and Fennel Pondweed (*Potamogeton pectinatus*). This is considered an extreme in the range of turlough types in Ireland. The rare plant species, Intermediate Wintergreen (*Pyrola media*), occurs among heath vegetation on higher ground within the site. This species is listed in the Irish Red Data Book. A breeding colony of Lesser Horseshoe Bats occurs within the site. More than 60 individuals were counted in 1998. The bats inhabit a semi-derelict cottage and a nearby out-building. Lesser Horseshoe Bat is listed on Annex II of the E.U. Habitats Directive. The dense hazel scrub provides ideal cover for mammals. Both Pine Marten and Badger have been recorded from this site. Both species are listed in the Red Data Book as threatened in Europe. The scarce butterfly, Marsh Fritillary (*Euphydryas aurinia*), has been reported from the site; this species is mostly found in areas where its food plant, Devil's-bit Scabious (*Succisa pratensis*), occurs commonly. Marsh Fritillary is listed on Annex II of the E.U. Habitats Directive. Breeding Cuckoo and Whitethroat are plentiful in this area, as are Yellowhammer, Stonechat and Wheatear. The area is very rich in entomological terms, with a number of species of butterfly and moth which are known in Ireland only from the Burren. Most of the site is grazed by cattle (particularly in the winter) and also by sheep and goats. The effects of both over-grazing and under-grazing are visible in places. Intensification of agriculture has caused damage to parts of the site, while clearance of scrub and limestone pavement represent the main threat to the remainder. The practice of winter grazing at appropriate stocking levels and of suitable duration must be maintained to preserve the species richness and diversity of these grasslands. Large silage pits and cattle feeding rings situated in sensitive areas directly on the pavement pose a threat to the water quality of the area. This site is of international scientific importance owing to the presence of fine examples of typical Burren habitats, including several habitats listed on Annex I of the E.U. Habitats Directive. The limestone pavement and heath are particularly noteworthy. The presence of a substantial summer colony of Lesser Horseshoe Bat is also of note and the site is, furthermore, of high amenity and scenic value.

APPENDIX II

**VISITOR ATTITUDES SURVEY An Rath 2014 (MWB)**

1. How long do you intend visiting this site?

Less than 1 hour	1-2 hours	3-4 hours	5-6 hours	Full day
98	0	2	0	0

2. How would you rate the signposting for directions to this site on a scale of 1-10 (1=poor; 10=very good)

1	2	3	4	5	6	7	8	9	10
38	12	2	12	19	5	10	2	0	0

3. How would you rate the physical entry to this site (including stiles and footpaths)

1	2	3	4	5	6	7	8	9	10
2	2	10	2	5	2	26	21	19	10

4. How would you rate the parking facilities at this site? (Scale 1-10)

1	2	3	4	5	6	7	8	9	10
7	5	2	0	7	10	26	26	10	7

5. Have you noticed any information boards at this site/location?

Yes	No
21	79

6. Have you read the information on them?

Yes	Partially	No
67	11	22

7. Did the information add to your understanding of the Burren?

Yes	No
14	86

8. How would you rate your overall satisfaction with your visit to this site?

Very dissatisfied	Dissatisfied	Neither satisfied or dissatisfied	Satisfied	Very satisfied
2	0	2	76	19

9. What is the main type of transport you are using to travel within the Burren?

Own car	Hired/rented	Public transport	Motorbike	Coach day tour	Coach guided tour	Private chauffeur tour	Bicycle	Other
36	21	5	0	26	5	7	0	2

## VISITOR ATTITUDES SURVEY Cahermore 2014 (MWB)

1. How long do you intend visiting this site?

Less than 1 hour	1-2 hours	3-4 hours	5-6 hours	Full day
94	6	0	0	0

2. How would you rate the signposting for directions to this site on a scale of 1-10 (1=poor; 10=very good)

1	2	3	4	5	6	7	8	9	10
47	9	6	6	18	9	0	6	0	0

3. How would you rate the physical entry to this site (including stiles and footpaths)

1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	3	15	18	44	21

4. How would you rate the parking facilities at this site? (Scale 1-10)

1	2	3	4	5	6	7	8	9	10
3	6	21	9	6	6	3	44	3	0

5. Have you noticed any information boards at this site/location?

Yes	No
97	3

6. Have you read the information on them?

Yes	Partially	No
94	6	0

7. Did the information add to your understanding of the Burren?

Yes	No
94	6

8. How would you rate your overall satisfaction with your visit to this site?

Very dissatisfied	Dissatisfied	Neither satisfied or dissatisfied	Satisfied	Very satisfied
0	0	3	35	62

9. What is the main type of transport you are using to travel within the Burren?

Own car	Hired/rented	Public transport	Motorbike	Coach day tour	Coach guided tour	Private chauffeur tour	Bicycle	Other
26	38	6	3	15	6	6	0	3

## APPENDIX III

### Visitor observations findings at Cahermore (ZH)

#### SITE: CAHERMORE

#### 1. Survey Detail

Site Id : CM	Date Of Survey	Day of Week	Duration of Survey	Weather	No of people observed
	9-9-14	Tuesday	9.30am-4.30pm (7 hours)	Hot and Sunny	10

#### 2. Number of Observations, gender and group breakdown

Number of people observed	Total number of females	Total number of males	Number of groups	Average group size
10	6	4	4	2-3

Comment: Group size did not exceed 3

#### 3. Mode of transport, Time Spent on Site and Main activity, group and age demographic

Date of observation	Obs group id	Time spent on site (hours:minutes)	Group type	Age demographic	Mode of transport	Main activity	Observed impacts
9-9-14	CM1	00:21	1M:2F	50-60	Car	Viewing site	None
9-9-14	CM2	00:11	1M:1F	70-75	Car	Viewing from platform	None
9-9-14	CM3	00:02	2M:1F	25-30	Push Bike	Pit stop on cycle	Possible toilet stop
9-9-14	CM4	00:43	2F	20-25	Car	Picnicking and sunbathing	Climbing on walls

Average time spent on site: 19 minutes

#### Summary

#### Main Activities undertaken by observed visitors:

- Walking (35%)
- Photography (27%)
- Viewing landscape (18%)
- Picnicking (9%)

#### Mode of transport:

Car 64%

Push bike 27%

Motorbike: 9%

Average time spent on site: 1 hour 60 mins.

#### Observed Impacts:

1 Car parked on grass verge (14% of car owners)

1 couple went off designated trail to sit on rock (approx. distance 20m) – (2 out of six walkers: 33%)

#### 4. Time spent reading Information Boards

Observation group Id	Time spent reading information boards (mins:secs)
CM1	00:30
CM2	01:00
CM3	01:30
CM4	02:00

Average time spent reading panel: 1 minute 25 seconds

#### 5. Impacts Observed

Walking on walls

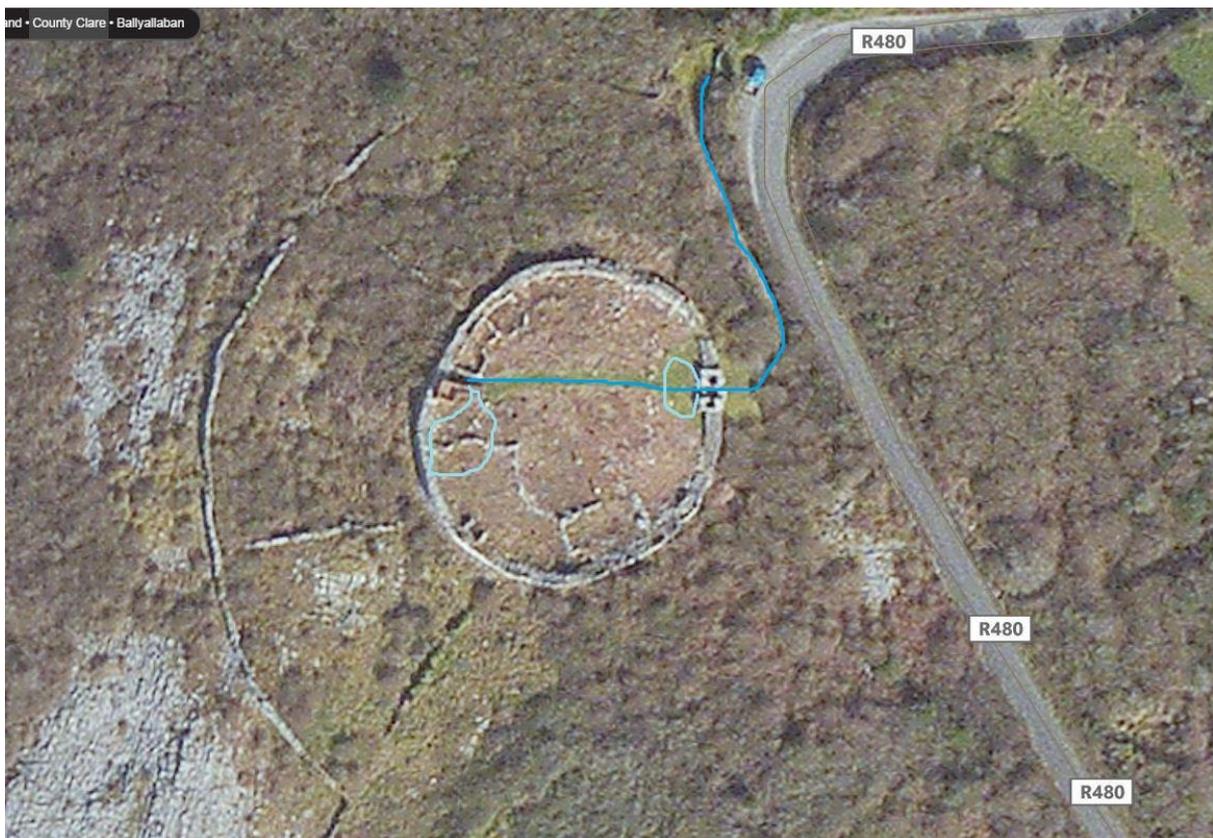
Using site as toilet stop

Comment: Sample size is too small to use percentage as reliable result.

#### 6. Time of day of arrival at site (observation study duration: 11.00-16.00 hours)

Observer Group ID	Time of Arrival at site
CM1	10.38am
CM2	12.23pm
CM3	12.42pm
CM4	14.11pm

#### 7. Visitor Movement Pattern



Observed movement patterns – dark blue line show core movement area; lighter blue peripheral