ERRIGAL MOUNTAIN PATH STUDY

Final Report



Produced on behalf of

The Errigal Stakeholders Committee

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CONTENTS

1 Background to the Study 3
2 Methods 7
3 Outcomes of the landowner / shareholder and public consultations 9
4 Survey Results 10
5 Options for management 14
6 Recommendations 21
7 Costs 30
8 Next steps 31
9 Risks and benefits to the SAC 32
10 References 34

FIGURES

Figure 1: Existing routes with section numbers identified 10
Figure 2: Condition and dynamism of each path section 13
Figure 3: visualisation of potential path style on stream-side section (Before / After) 22
Figure 4: visualisation of potential path alignment and landscaping on the ridge section 23
Figure 5: Visualisation of potential habitat restoration of the 'main face' visible from the road (Before / After) 24
Figure 6: Visualisation of potential restoration and path realigment (Before / After) 25
Figure 7: Priorities for implementation - proposed phasing of works 29
Figure 8: Extent of vegetation damage due to recreation 33

APPENDICES

Appendix 1: Amber Survey Results

Appendix 2: Maps of paths

1 BACKGROUND TO THE STUDY

The Errigal Stakeholders Committee was established in 2012 to consider and investigate options to address the ongoing erosion of the existing access to Errigal Mountain due to the increased number of the visitors climbing Errigal in the last 20 years. The construction of a carpark for visitors along the R251 in the mid-eighties focused the majority of walkers into one access point and encouraged increased usage, with consequent environmental impact on that side of the mountain. This part of Errigal is contained within Cloghernagore Bog and Glenveagh National Park Special Area of Conservation (Site No. SAC 002047) and the Derryveagh and Glendowan Mountains Special Protection Area (Site No. SPA 004039).

The Committee's overall aim is to cater for the growing number of visitors to this wonderful place while minimising the environmental impact and creating opportunities for local communities. The primary purpose of this study is to secure expert advice on how to address the recreation-induced erosion at Errigal and how to best care for this special mountain into the future.

The following organisations are represented on the Errigal Stakeholders Committee:

- Donegal County Council
- Coiste Forbartha Dhún Lúiche
- National Parks & Wildlife Service
- Mountaineering Ireland
- Gartan Outdoor Education & Training Centre
- Fáilte Ireland
- Udaras Na Gaeltachta
- Roinn Na Gaeltachta
- Donegal Local Development Company (DLDC)
- An Taisce

To date the committee has been chaired by a representative of Donegal County Council.

The stakeholders group at their meeting of 27 January 2015 selected a sub group comprising of Donegal County Council, Coiste Forbartha Dhún Lúiche, Mountaineering Ireland, National Parks & Wildlife Service, DLDC Rural Recreation Officer. This subgroup undertook a piece of work revolving around scoping out a research and study project to examine how best recreational access could be improved while at the same time safeguarding the mountain itself. Funding was provided by Donegal County Council through the Strategic Development Fund, the subcommittee then agreed to seek professional advice and a tender process was undertaken which resulted in Walking-the-Talk being appointed.

Field survey was undertaken in July 2015.

1.1 ACKNOWLEDGEMENTS

Walking-the-Talk is grateful to the residents of Dunlewey who have generously given time and resources to assisting this study. The work has been greatly assisted by all the members of the stakeholders committee in providing guidance and feedback on progress. The study would not have been possible without the cooperation of landowners and contributions from members of the public who took part in the consultation process.

1.2 RECREATIONAL USE OF ERRIGAL

Errigal is a popular destination for hillwalkers and anecdotal evidence suggests that its popularity has increased significantly in recent years. It attracts a wide range of people from those who have no experience of hillwalking, including family groups, through to seasoned walkers. Some people are known to climb Errigal on a frequent basis, and others, including many tourists are likely to make only one visit.

The 'Glover Walk' (also referred to as Glover Challenge or Glover Highlander) includes Errigal and became a popular annual event in 1979. However, it was suspended following fears over its popularity and the impact on paths. It has been run occasionally (including in 2015) since then with limited pre-registration, but the original purpose of the walk has been overtaken, and now appears to commemorate anniversaries of the North West Mountaineering Club.

The following table is taken from Simon Stewart's website (see www.simonstewart.ie/Glover/glover.htm)

Year	Conditions	Number	Comment
1979	Excellent	56	
1980	Appalling	100	
1981	Excellent	54	
1982	OK	81	Storm at night
1983	Blustery	120	
1984	OK	94	
1985	Severe gales	Not known.	
1986			
1987	Windy, clear	Not known.	
1988	Visibility Nil	108	Everyone got lost
1989	Excellent	Not known.	
1990			
1991	Windy, clear	189	
1992	Fine day.	169	
1993	Poor - improving.	175	
1994	Fine day.	210	
1995	Mixed	167	
1996	Fine day.	316	
1997	Mixed, windy	305	
1998	Prolonged showers, high winds.	208 (130 finished)	First year of pre-entry.

Errigal has become popular with charity fundraising events and groups wishing to undertake a 'physical challenge'. This brings many people to the mountain, some of whom may not be accustomed to mountain environments.

Errigal features in the iconography of the area, with the name and imagery being extensively used in tourism promotion and even for businesses that have only tenuous connections with the mountain. There is a strong 'online presence' for Errigal, including general tourism sites (e.g. Trip Advisor) as well as those aimed at walkers. Errigal was recently proclaimed 'Ireland's most iconic mountain' (see http://www.walkingandhikingireland.com/irelands-iconic-mountains-number-1-errigal/). These factors have developed a broad awareness of the mountain, beyond the expected audience of dedicated hill walkers, and may explain some of its popularity. It is telling, however, that very few images available online show the approach path or the damage that is clearly visible from the road. Most pictures that include a section of path portray it as a single line on the ridge.

1.3 LAND USE

Errigal has been used for grazing sheep but there are very few livestock on the hill today. The land used for recreation forms part of commonage areas and three 'land parcels' are currently showing the effects of recreation: DL32574, DL34790F and DL37699.

1.4 CONSERVATION STATUS OF ERRIGAL

Errigal is part of the Cloghernagore Bog and Glenveagh National Park SAC, and as such it is protected under the Habitats Directive of the European Union. The designation of Special Area of Conservation (SAC) brings a legal duty to ensure that the habitats and species are kept in 'favourable condition'. The following statement is taken from the Conservation Objectives of the Cloghernagore Bog and Glenveagh National Park SAC (NPWS, 2015):

Favourable conservation status of a habitat is achieved when:

- *its natural range, and area it covers within that range, are stable or increasing, and*
- *the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and*
- *the conservation status of its typical species is favourable.*

The main conservation objective for the SAC is:

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

1.5 PRINCIPLES AND GUIDANCE FOR THIS STUDY

In recognition of the high conservation and landscape value of Errigal, and the potential for high quality recreational experiences, the Stakeholder Committee established that the main priority for this study was the long term sustainable management of Errigal.

Walking-the-Talk has based the survey and recommendations on the principles of the Upland Path Advisory Group, including the Upland Pathwork Manual (UPAG, revised 2015) and recognises the value of 'Helping The Hills' in setting the context for this study. All references to repair and construction techniques within this report, lie firmly within the context of the Upland Pathwork Manual and should not be reinterpreted through the perspective of conventional construction industry or civil engineering standards. Although it may appear counter-intuitive, strict adherence to prescribed dimensions and quantities is very likely to result in a lower quality outcome than following the principles and techniques advocated by the Upland Paths Advisory Group – these require experienced people to make informed decisions, in order to produce a robust path that will merge with its setting.

The revised Upland Pathwork Manual is available at:

http://www.snh.org.uk/pdfs/publications/heritagemanagement/UplandPathwork.pdf

Helping The Hills Principles

Communications

1. Management of upland paths should be informed by consultation with all stakeholders, including landowners, recreational users, relevant statutory bodies and the local community.

2. When path repair work is in progress, temporary signage and other communications should explain that the work is being carried out to protect the natural environment.

3. Information on the responsible and sustainable use of upland paths should be available to all users.

Ethos

4. All those who go into the uplands, whether individually or as part of a group, have a responsibility to minimise the impact of their activities on the natural environment.

5. Upland pathwork should be carried out within a coherent and agreed management framework, which establishes the rationale for works, their relative importance and includes a commitment to long-term maintenance.

6. Path repair or construction in the uplands should only be carried out when this is necessary to protect the environment.

7. Any work carried out should strive for minimum impact on the essentially wild character of the landscape.

8. The more remote the path, the more stringently the criteria for path repairs should be applied. This will be a matter of judgment, but in general, the more remote or wild the location, the less acceptable an obviously engineered path will be.

9. Those involved in the design, implementation and supervision of upland pathwork should preferably be technically competent and suitably experienced.

10. Private landowners have to be involved in decision-making regarding erosion management on their land; however they should not be expected to bear the cost of repairing paths that have been eroded through recreational use.

11. A sustained multi-annual commitment of resources to upland path management will be sought, so that small scale continuous maintenance can become the norm, with the aim of preventing the need for major repairs.

Practice

12. Pathwork should be of the highest standard of design and implementation, normally using locally sourced materials in harmony with the site. The best or most sensitive solution and quality of work should always be sought, not necessarily the cheapest, and this should be reflected in the public procurement process.

13. Good environmental practice is paramount. Techniques used should protect existing vegetation and cultural remains, and the site should be left in as natural a state as is practicable. This is particularly important in areas designated for nature conservation or landscape value.

14. The addition of intrusive features such as fences, waymarkers, inappropriate signage and cairns should be avoided.

15. Machines can provide valuable assistance in upland pathwork; however they must be used sensitively and appropriately by a skilled operator. The use of machines should be in accordance with all other principles.

16. It should be an objective in any upland path work to train and upskill local people with a view to establishing a long term skills and employment base, although it may be necessary to bring in workers with relevant expertise from outside the area.

All stages of future work on the ground, from initial design, through contract management, path repair, site supervision and maintenance should adhere to these principles and would be logical to follow the standards and guidance set out by the Upland Paths Advisory Group. Throughout the process, the 'client' (whoever takes responsibility for managing paths on Errigal) needs to ensure that competent people are involved, and the client needs to take account of the expert advice made available. An integral part of this project is a learning process for those who remain involved in the long term management of the mountain, to ensure that they have the skills and capacity to reverse the current impacts of recreation and then manage the paths sensitively, for future generations to enjoy Errigal.

2 METHODS

The tender brief required the following actions to be completed:

a) Map the existing upland path network on the eastern and south-eastern side of Errigal;
b) Assess and systematically record the current condition of each section of the path network;
c) Consult with the Errigal Stakeholders Committee and interested parties to identify concerns and trends, and to outline findings of the study;
d) Make prioritised recommendations for the management, repair and maintenance of the path network, including indicative costings;

2.1 MAPPING AND RECORDING PATHS

Walking-the-Talk undertook a field survey of Errigal paths to assess their extent and current condition. The method is based on the standard Amber Survey technique described in the Upland Path Management Manual (UPAG, 2003).

> *"An Amber survey is particularly useful when surveying a number of paths. It is about current and projected path condition and may provide outline costs. It provides information about path management requirements, the costs of their implementation and the condition and physical setting of paths. It can also be used as baseline information for monitoring change over time. Information from an Amber survey can be used to support funding applications and also to monitor the effectiveness of path management." Source: UPAG (2003)*

The technique is described in detail in the Manual, available at: www.snh.org.uk/uplandpathmanagement/2.4.shtml

Each of the routes was divided into coherent sections to allow them to be assessed and they were mapped with a GPS (accuracy 3-5m during the field survey). Each section was also photographed in detail with the images being 'geotagged' for location.

Walking-the-Talk has developed a proprietary database (using Microsoft Access) which is linked to a Geographical Information System (GIS) to allow field data to be captured and analysed. Ordnance Survey Ireland's digital mapping data was provided through a contractors' licence, which allows the data to be reproduced on high quality 'backdrop' mapping. The outputs from the database are included as Appendix 1, with the detailed records and up to four representative images for each section.

2.2 CONSULTATIONS

Meetings were held with the Errigal Stakeholder Committee to identify the scope of the project, outline any constraints and opportunities and to discuss the range of issues for path management on Errigal.

Land ownership data was obtained from the Irish Land Registry by the Rural Recreation Officer and each of the landowners / shareholders within the area of the study were contacted by Sean O'Donnell. Local contact details for Walking-the-Talk were made available to all landowners / shareholders, and they were invited to provide their views on the project and identify any issues that they may have regarding public access on the land they manage. Six landowners / shareholders made contact and their views were discussed on a one-to-one basis.

Discussions were held with Mountaineering Ireland, including a site visit to the summit of Errigal, placing the recreational use of Errigal in a national context. The views expressed centred around a desire for sensitive management rather than access development, the need for better information and education about the mountain and access, and a need to build capacity in path management within Ireland.

Information and initial feedback were gathered from the National Parks and Wildlife Service (NPWS) to identify any natural heritage, conservation or legal constraints / issues.

A site visit was held with local community representatives. This involved ascent of the 'old route' as far as the 'part-way cairn'; discussions focussed on potential relocation of the car park and ongoing management of the route. The return was via the saddle and stream-side route, in the twilight.

During the field survey the opportunity was taken to ask visitors' opinions and experiences of Errigal. This ranged from people living in Donegal, Northern Ireland, the United Kingdom and the wider European Union.

A public consultation event was held on Saturday 25th July 2015 at Dunlewey Community Centre. The event was organised as a 'drop in' session from 4-7pm, with informal displays of the current condition of the routes on Errigal, and was an opportunity for anyone to discuss issues on a one-to-one basis. In addition, a more formal presentation was given at 6.30pm highlighting the issues relating to erosion on Errigal and path management techniques.

The event was widely publicised by the Steering Group and resulted in local press articles being published and radio interviews being broadcast, covering the issues of path management and highlighting the forthcoming consultation event. One landowner came to the drop-in session and twelve people attended the presentation: this was followed by open discussion which lasted almost an hour.

In addition to the event, a dedicated email address was set up and widely promoted, to facilitate feedback from interested parties.

3 OUTCOMES OF THE LANDOWNER / SHAREHOLDER AND PUBLIC CONSULTATIONS

The main concerns of land owners revolved around potential liability / indemnity for visitors, potential agricultural penalties for loss of grazing, and the need for long term management of the mountain. Although one landowner would have preferred the car park not to have been built, and all were concerned about the damage caused by visitors, there were no objections to people using the mountain. However, none of the landowners expressed a strong desire for more promotion of the route and a number asked whether it would be possible to limit or restrict visitors' use of the mountain. There was universal support for repairing the existing damage and minimising the impact of visitors.

The discussion at the public meeting was positive and thought provoking with a range of opinions being expressed. A number of questions related to the provision of car parking and the starting point of the route. People did not think it would be possible to restrict or prevent parking along the roadside but there was not strong support for large expansion of the existing car park. Estimates of visitors were suggested at 70,000 per year, but this was based on earlier figure of 40,000 (from a survey) and a feeling that it was now busier. Some local residents and business owners thought that more visitors would be a positive thing for the village, but were not sure whether the increase in numbers of recent years had been matched by increase in business. The need to make better links between Errigal and Dunlewey was highlighted, to encourage a higher proportion of visitors to remain in the area and contribute to the local economy.

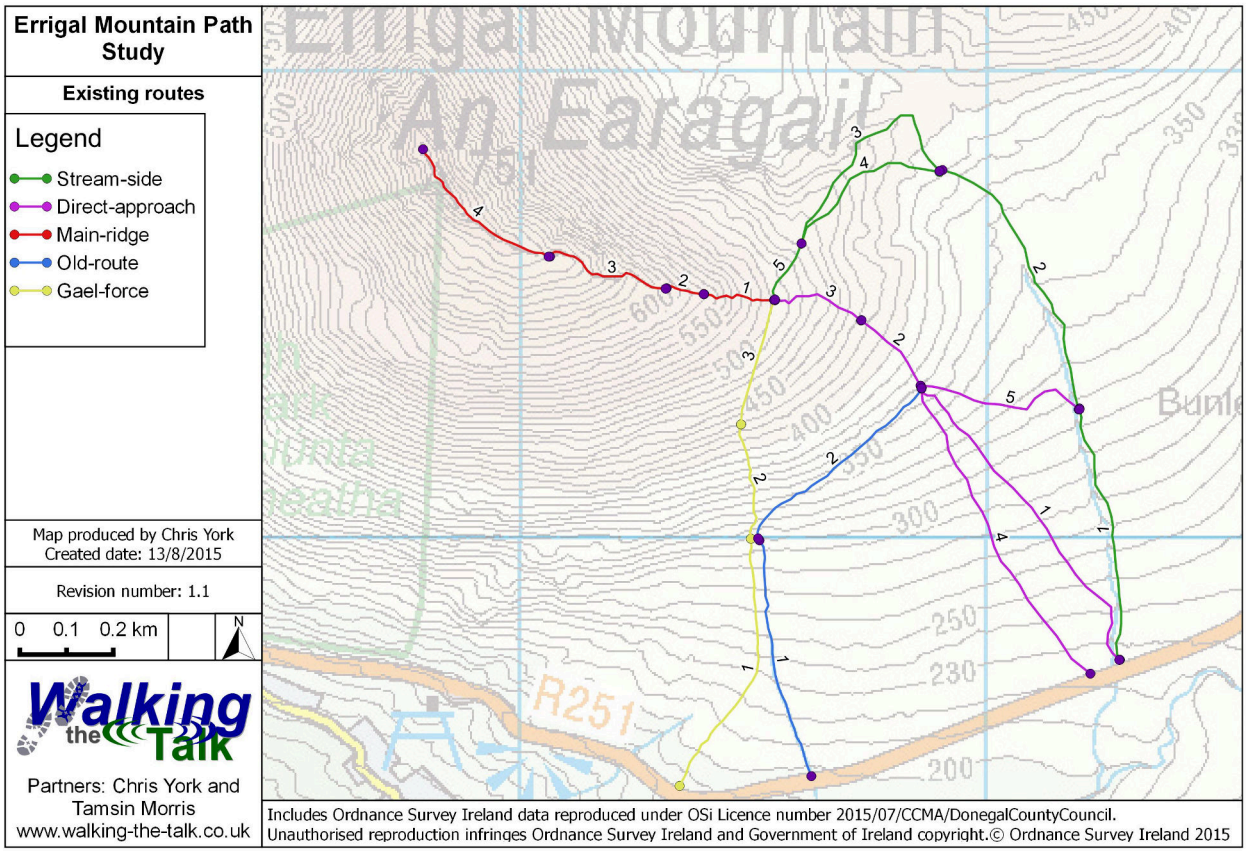
Donegal Mountain Rescue team provided comment that the current condition of the path had resulted in a number of injuries and callouts in recent years. The team is keen to improve safety on the hill and were supportive of the idea to stabilise the route and avoid people being required to cross deep peat.

The email address resulted in a number of responses: all were relevant and provided ideas, opinions or copies of photos taken in previous years to compare change over time. Comments included building a board walk, using stone slabs and marking a route. Some respondents were involved in the tourism industry and those who sent pictures had a strong sense of wanting to reduce the erosion.

4 SURVEY RESULTS

The detailed survey outcomes for each of the existing 'routes' on the south and south-eastern side of Errigal are available in a separate appendix.

FIGURE 1: EXISTING ROUTES WITH SECTION NUMBERS IDENTIFIED



4.1 DIRECT ASCENT

4.1.1 DESCRIPTION OF THE ROUTE

This is the shortest route from the car park and is currently the most commonly used. From the car park there is immediate 'immersion' in deep peat, which is extremely wet and provides an unpleasant start to the journey. There are a large number of braids that are actively developing, as people try to avoid bare peat and the worst of the wet boggy areas.

After navigating through the bog this route takes a very steep ascent up the southeast face of Errigal, and has resulted in a wide evolved line with mobile natural-aggregate surface, following the active spring line. There are multiple braids on the steep sections (approximately 40% gradient c20°), with new routes being actively developed (trampling of vegetation and 'pigeonholing' of the peat to form steps).

4.1.2 ASSESSMENT: ROUTE CONDITION AND POTENTIAL FOR DETERIORATION

Observations from the field survey suggest that people are going 'straight' through the bog on the ascent (with lots of traversing the wet / peaty areas) and generally avoiding the wet mire on the descent. This is leading to an expansion of the trampled and bare ground. Additional braids are developing as some people head down towards the road, and others use the first section of the stream-side route – within this broad zone it is difficult to find significant areas without some sign of trampling.

Section two is also deteriorating rapidly, with active erosion of the peat by surface water and feet. People are avoiding the steeper ground where scree is exposed despite it being relatively stable. This is probably because scree further up

the hill is very mobile. This means that existing braids are expanding as people trample the soft edges, and new routes are developing, spreading the extent of damage.

Section three is a broad damage zone with exposed scree. The scree is steep and, in places, mobile meaning that some people are using the sides to avoid sliding. A spring line has developed and the water issuing is causing erosion of the screes.

The steepness of sections two and three is such that the route will continue to deteriorate with continued use, and would take a prolonged period to recover even if all visitor pressure were to be removed. It is likely that section one would slowly revegetate if all visitor pressure were to be removed.

4.2 STREAM-SIDE

4.2.1 DESCRIPTION OF THE ROUTE

From the car park a series of fence posts mark a route along the stream towards the col. Stone cairns have been constructed to further promote this route. This evolved line crosses peat of variable depth, which is poorly drained in many places. The route becomes less distinct on the ground beyond the second cairn, but runs up to the col where a square cairn has been built. From there, the route follows a shoulder of rock up to the part-way cairn at 500m – this section is used during the 'Glover Walk'.

4.2.2 ASSESSMENT: ROUTE CONDITION AND POTENTIAL FOR DETERIORATION

The first section is heavily used and has a broad zone of trampling and large patches of bare peat that appear to be expanding. However, further up, as the lure of the direct ascent becomes too great, use is relatively light and consequentially the damage is less. The stream captures all the potential surface water coming from Errigal meaning that the peat is relatively dry, except locally where surface water from the east flows towards the stream. The stream also helps to define the line and constrain trampling on the western side.

With the current levels of use the route will continue to deteriorate slowly, with the vegetation not having opportunity to recover from trampling. However, if this became the main route, without any work being done in preparation, it would deteriorate very rapidly and there would potentially be widespread damage to the bog as people trampled further field to avoid wet areas. If all visitor pressure were to be removed it is likely that the vegetation would gradually recover.

4.3 THE OLD ROUTE

4.3.1 DESCRIPTION OF THE ROUTE

The start of the route is approximately 500m along the road from the current car park and follows a ditch, which is thought to demarcate a land parcel boundary. The route ascends directly uphill across a mix of blanket bog and wet heath with high plant species diversity. There are some old 'cross drains' that were built before the car park was constructed, and these have become mostly overgrown. The line of the route is relatively faint and is mostly dry underfoot at present. Above the peat bog the route gently rises to meet the direct ascent route at the base of the scree.

4.3.2 ASSESSMENT: ROUTE CONDITION AND POTENTIAL FOR DETERIORATION

With the relatively low levels of use since the development of the car park, this route has recovered to become a relatively minor 'trod'. However, if the visitor pressure was diverted to this route it would deteriorate quickly, even with the drainage features that were installed.

4.4 THE 'GAEL FORCE' ROUTE

4.4.1 DESCRIPTION OF THE ROUTE

This is an evolved line which has been used over recent years for a challenge event run by Gael Force. It takes the most direct line from the viewpoint car park to the part-way cairn at 500m. The first section intersects with the Old

Route and it is possible that some or most participants switched to the Old Route for ascent. The second section follows a direct line towards the part-way cairn over very steep ground (over 50% gradient, c30°) and shows signs of being a descent route. The third section is not very obvious on the ground (and weather conditions at the time of the survey were poor enough that it could not be seen from the road) and may be a dispersed area of damage where competitors take the short cut at various points from the main ridge path.

4.4.2 ASSESSMENT: ROUTE CONDITION AND POTENTIAL FOR DETERIORATION

This route appears to be intensively used on one day each year. The damage is significant and is likely to cause major erosion if the route continues to be used for this purpose, particularly on section 2. The route is now visible from the viewpoint car park, and is likely to begin to attract more use unless it is repaired or disguised.

If all visitor pressure was to be removed section one would recover quickly, but section two is likely to take much longer to revegetate because of the level of damage.

4.5 THE MAIN RIDGE

4.5.1 DESCRIPTION OF THE ROUTE

From the part-way cairn at 500m altitude the main route follows the shoulder of the mountain to reach the ridge. The ground is steep in places (up to 50% gradient, 25-30°) and the route has evolved as a number of zigzags to reduce the gradient. The route is up to 30m wide, with multiple braids on the steep ground, but higher up the terrain prevents spread of the path. Along the ridge itself there are a number of braids that provide different walking conditions – ranging from on top of the ridge itself to lower down in the lee of the ridge.

4.5.2 ASSESSMENT: ROUTE CONDITION AND POTENTIAL FOR DETERIORATION

Individual zigzags on section one are ephemeral, as people make different choices in response to prevailing conditions – small changes to the position of loose scree can deflect people to a new line. Significant levels of erosion have taken place and the individual braids have joined into a wide and intensive damage zone.

Photos sent by members of the public show section four in recognisably similar condition from 2006 and earlier. The damage zone has increased slightly but the level of damage remains relatively constant. There are some signs that a few individual braids have expanded and amalgamated but there has not been large-scale movement of material.

Although walking conditions may not get much worse, the amount of erosion will continue to increase especially on sections one to three. Section four is relatively stable (having reached the so-called 'battered equilibrium') and is unlikely to deteriorate rapidly.

If all visitor pressure was to be removed it would take many decades for the slopes to revegetate and it is likely that a scar would always be visible. Poor growing conditions on the ridge and summit mean that recovery time is greatly extended compared to lower on Errigal.

4.6 THE CAR PARK

The car park is an important part of the visitor experience to Errigal as it potentially sets the context for the visit. The current design and layout of the car park is urban and municipal, bearing very little relation to the setting or preferred behaviour of users. There is no coherent information provision and signs that have been installed would be more appropriate to a town centre location. It is unclear why a large 'sculpture' commemorating the first ascent of Everest by a Donegal person is located in the car park – it is a tenuous link between Errigal and Everest and this type of sculpture / commemoration, however worthy it may be, would be more appropriately sited in, for example, Dunlewey.

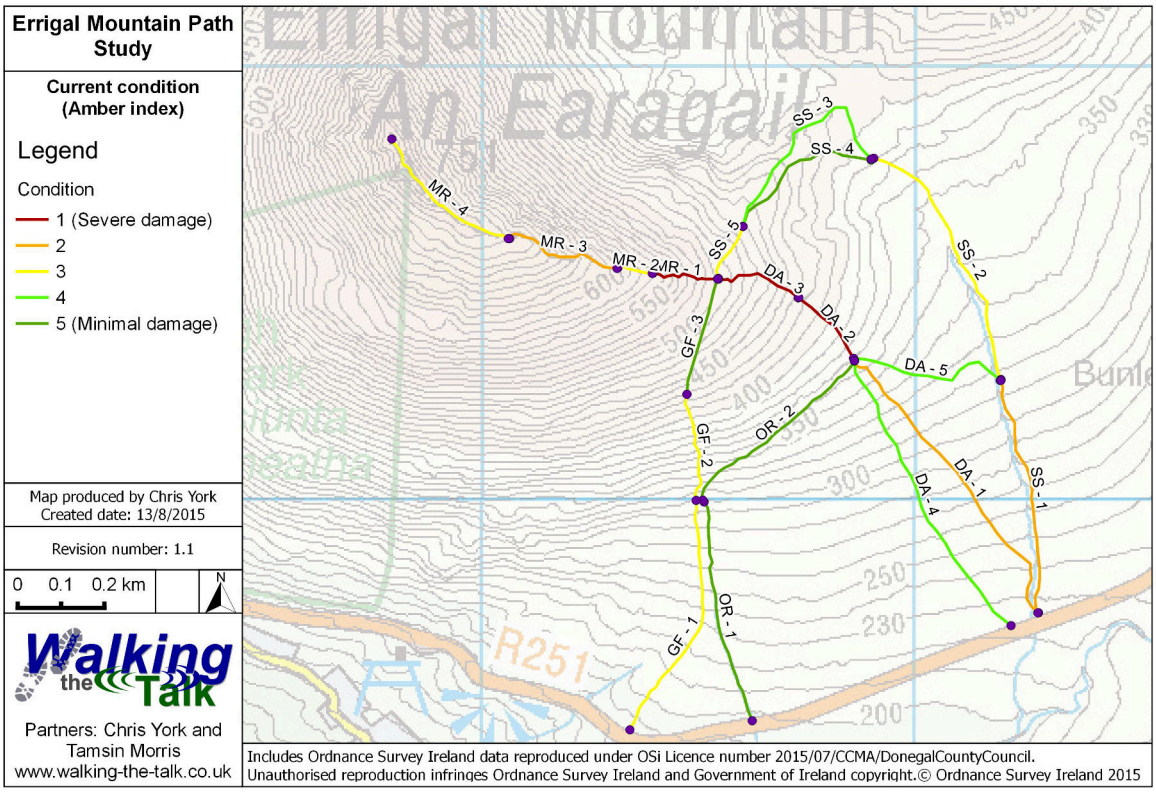
The design of the car park is unsympathetic to its location and the low surrounding walls are not of a high quality construction. Demand for car parking is very high but there are no clues for visitors showing how to use the space efficiently. On one occasion during the survey a car and caravan were taking up one side of the car park, while a small

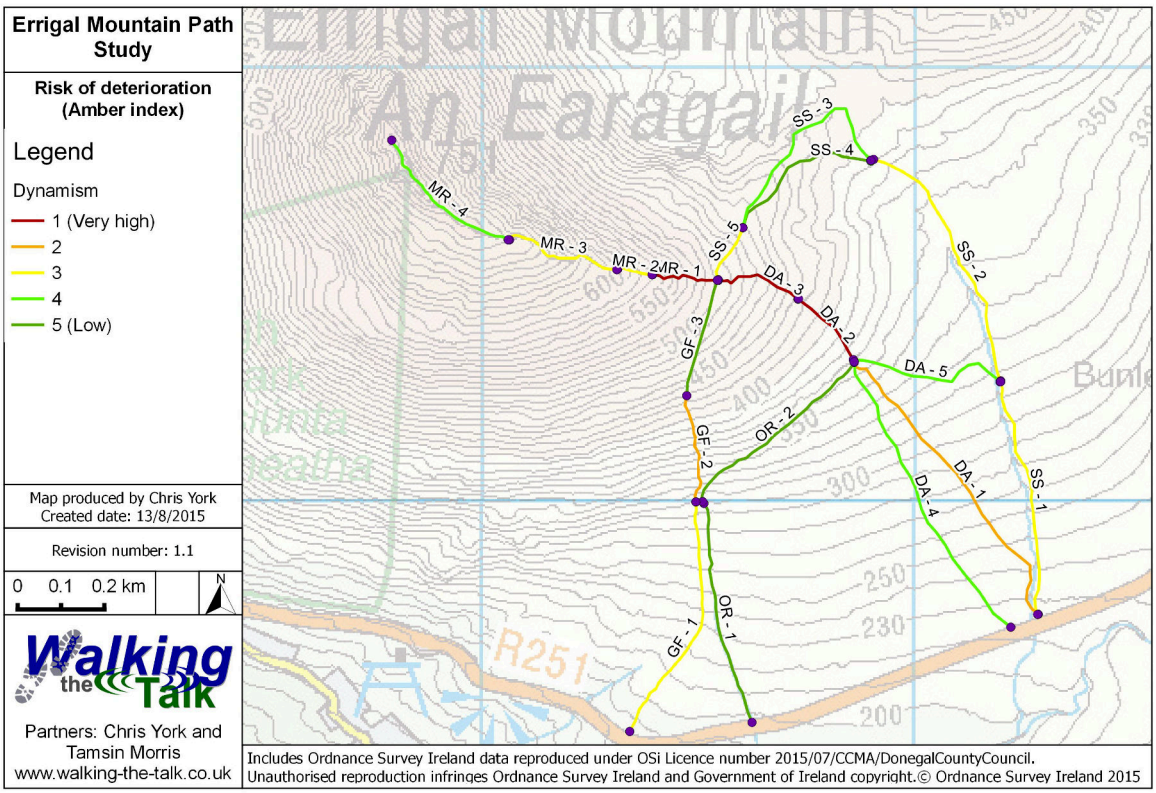
coach constricted the entry/exit. It is very common for the roadside to be used for 'overflow' parking and there are anecdotal reports of over 100 vehicles being parked along the road.

4.7 SUMMARY OF PATH CONDITION AND POTENTIAL TO DETERIORATE (DYNAMISM)

The following maps show the assessment of each path section using the standard indices of the Amber survey method.

FIGURE 2: CONDITION AND DYNAMISM OF EACH PATH SECTION





5 OPTIONS FOR MANAGEMENT

5.1 PATH REPAIR TECHNIQUES

There are three sets of techniques that could potentially be used, but only one of them fits with the ethos of repairing the damage and minimising the overall impact of recreation on Errigal.

5.1.1 SURFACED PATH WITH IMPORTED MATERIALS

Paths with regular dimensions and defined edges are commonly found around settlements, and are associated with civil-engineering type developments to encourage people to use an area. This approach may provide a comfortable walking surface but may have a very high cost to construct in such challenging terrain. It would potentially have an extra-ordinarily large impact on the landscape value and visitor experience of Errigal and should not be considered as a viable option.

5.1.2 BOARD WALK

Wooden board walks have been constructed in mountain areas but have extremely high visual impacts. Although their proponents claim that boardwalks have the least impact on an ecosystem, it is questionable whether they have a lower overall and long term impact than using materials on site. Board walks also 'disconnect' people from the mountain environment and potentially give a false sense of safety. There would be severe technical challenges to constructing a board walk to the summit and this option should not be considered as viable, even for the lower part of the route across the bog as it would be likely to attract large numbers of people who are inadequately prepared for their journey up a mountain.

5.1.3 UPLAND STYLE PATH

Relatively narrow paths that 'fit' with their surroundings, using carefully selected materials from on site (or nearby), have been shown to provide sustainable and low visual impact solutions in many mountain areas. Natural aggregate, dug from the vicinity of the path, is graded and compacted to form an irregular walking surface, interspersed with boulders to 'anchor' the path on slopes. On steeper ground (above 10 degrees or c20% gradient) boulder steps, known as pitching, are generally used to create a stable route. The width may vary, and should include areas where people can pass and walk side-by-side on occasion. Path edges are irregular and the surrounding area should be less attractive to walk on. Drainage features are subtly incorporated into the path to ensure that water cannot cause damage to the path. Any imported materials are carefully selected to match those found on site and artificial binders (such as cement or bitumen) or drainage pipes are not used.

This is considered to be the most appropriate option for Errigal, and all of the following options are predicated on the use of upland path techniques. For more information on techniques and standards please refer to:

http://www.snh.org.uk/pdfs/publications/heritagemanagement/UplandPathwork.pdf

5.2 APPROACH PATH

A number of potential options exist for the 'approach' to the mountain. The existing routes converge near a large informal cairn part way up the hill, from where there are only minor variations on the route. The main options for management relate to these approach routes, where it would be appropriate to select a single route and manage that for use by all visitors; development of multiple routes would have significant resource implications and is therefore discounted as a viable management regime. The potential options are outlined below and each is analysed from the joint perspectives of long term sustainability, conservation impact, visitor management and cost effectiveness.

5.2.1 OPTION: DO NOTHING

This is the 'no immediate cost' option. The survey shows that the existing routes are actively impacting on Errigal and are likely to have a lasting impact on the integrity of the site if there is no intervention to control erosion and manage visitors. If no action is taken, therefore, the damage will continue to intensify and may have a long term impact,

including potential consequential impacts on the local economy through loss of tourism income. This means that the long term costs of doing nothing are likely to be high and it is highly probable that such costs would be significantly higher than early intervention to limit and reverse the damage.

5.2.2 OPTION: REMOVE ALL VISITOR PRESSURE

The option of closing the mountain exists and, theoretically, the habitats would recover if given sufficient time. This would probably take decades and the closure would need to be rigorously enforced. However, it is not considered practical, in a modern democratic society to prevent access to land that is not being actively managed and therefore enforcement would be impossible. Removal of the car park may help to reduce demand, but it is likely that it would simply displace pressure from the existing routes to areas that are no more robust. This would, at best, only be a temporary respite.

If this option were to be selected it would be the equivalent of 'do nothing' option as enough people would be likely to defy a ban such that it would be an ineffective measure. There are currently no alternative recreational opportunities in the area that would satisfy latent demand. This option is therefore seen as unviable.

5.2.3 OPTION: USE THE DIRECT ASCENT

POSITIVE ASPECTS OF THIS OPTION

This is the most obvious route for visitors who are unfamiliar with Errigal and in clear weather presents no navigational difficulties.

It would be a relatively short length of path needing to be constructed and maintained.

RISKS FOR THIS OPTION

The high visibility of the evolved path allows people to get to the top of Errigal with minimal preparation and may act as an encouragement for more visitors to attempt the ascent.

The peat bog needs to be crossed, currently leading to a poor visitor experience and widespread impact on the protected blanket bog habitat. Constructing a path across this area would be technically feasible, but would require highly skilled and sensitive work to prevent further damage.

The direct ascent above the peat bog is on steep ground and with the car park in sight (except in very misty conditions) it would be difficult to deviate the route in order to reduce the gradient. This means that a combination of stone pitching and natural aggregate path would be required.

The 'straight up and down' nature of this route may also encourage 'competitive' walking / running if a dry and more comfortable surface is provided. This would be much more difficult to maintain against the forces of gravity.

Keeping people on this line would be challenging, particularly for those descending, many of whom are likely to be tired from a prolonged descent on stone pitching, and may try to walk on the path edge to 'soften' the descent.

If constructed as a smooth path, the first part of the route would enhance the accessibility of Errigal, which would potentially increase pressure on the higher ground. Minor 'roughening' of a constructed route using some boulders within the path could help mitigate this.

EVALUATION OF THE OPTION

This route is technically feasible but would retain significant risks for management of the route and long term control of erosion. The bog crossing would need to be carefully constructed and it may not be possible to prevent deterioration as the peat settles and flows down the slope over time.

The steep part of this route would be difficult to sustain and would require significant resources to maintain. It would be very difficult to mitigate the risk of path migration (even with frequent maintenance), which would ultimately result in the failure of this option.

From a visitor experience perspective, this route does not offer more than a physical challenge and is likely to encourage additional people to climb, placing further pressure on the higher ground (where maintenance is more difficult).

This option should therefore be seen as a last resort, and should only be considered if resources for the high level of maintenance could be secured for the long term.

5.2.4 OPTION: REINSTATE THE OLD ROUTE

POSITIVE ASPECTS OF THIS OPTION

This is currently a pleasant route and uses drier ground than the direct ascent.

The start point is closer to Dunlewey, which may encourage more people to visit the village before or after their walk. However, this is not a primary consideration of the study.

RISKS FOR THIS OPTION

This route ends at the start of section 2 of the direct ascent and it may be difficult to prevent people from taking a short cut on the descent to meet the Old Route.

Section 1 crosses deep peat in places, although the ground is relatively dry, with diverse flora. This would mean that nay path would need to be carefully and sensitively constructed to avoid damage to the bog. It could potentially be 'floated' on a geotextile mat (e.g. terram)

The starting point and visibility of the path from above means that it would be hard to stop people taking a short cut on the descent, which could lead to failure of the direct ascent and therefore further damage to Errigal.

Using the viewpoint car park as the main starting point may cause 'conflict' with other visitors (i.e. this would become full with walkers' vehicles, leaving no space for people to stop and view Dunlewey Lough). The position of the viewpoint car park also means that people would need to cross the road, presenting a traffic management issue, particularly as there are poor sightlines.

EVALUATION OF THE OPTION

The very low levels of current use demonstrate the capability of the habitats to recover from damage and it would be difficult to make the case that this option is within the current damage zone. The termination of this route at the steep section of the Direct Approach means that the same issues apply for high long term maintenance costs.

The risk of people taking short cuts is high, potentially leading to further erosion, which adds to the negative aspects of this route compared with the direct route.

Overall, this route does not offer significant advantages over the Direct Approach and carries additional risks for further damage to the habitats on Errigal. Reestablishment of this route is therefore not recommended.

5.2.5 OPTION: USE THE STREAM-SIDE ROUTE

POSITIVE ASPECTS OF THIS OPTION

This route provides the lowest gradient available from the car park, which would place lower pressure on any constructed path.

There are sections of route where underlying glacial till is exposed, which could easily be incorporated into a new path

This route provides a link to the col where there are excellent views allowing people to get a positive mountain experience without needing to reach the summit. This potentially lowers the pressure on the higher ground.

RISKS FOR THIS OPTION

It is longer and takes people away from the car park on their return, which could lead to some walkers using the Direct Approach. Careful landscaping and positioning of the section above the cairn could help to mitigate this risk.

Some parts of the blanket bog are deep peat, which would mean a path would need to be carefully and sensitively constructed to avoid damage to the bog. It could potentially be 'floated' on a geotextile mat (e.g. terram).

Although it is likely that suitable construction materials can be found on site, borrow pits would be required. These may not be acceptable to NPWS.

If this route were to be used / promoted before the wet sections across the blanket bog are solved it is likely to fail as there is no incentive to take the longer route and still get wet / muddy feet.

If constructed as a smooth path, this would enhance the accessibility of Errigal, which would potentially increase pressure on the higher ground. The combination of existing bouldery ground and minor 'roughening' of a constructed route could help mitigate this.

EVALUATION OF THE OPTION

As with other options, there are significant risks associated with this route. However, with careful planning and implementation it should be possible to mitigate the risks and take advantage of the positive aspects of the route to provide a sustainable, high quality path. The stream-side route is approximately 400m longer than the direct approach, but the lure of a direct line can be difficult for some people to resist. Therefore this option would only be viable if extensive work to disguise the existing route was done, accompanied by a sustained programme of education and interpretation to change behaviour of hill walkers.

5.2.6 CREATE A NEW ROUTE TO THE COL

A theoretical option would be to close down the existing car park, repair the damage to existing routes and create a new route to provide a 'long walk in'. This could, for example utilise the existing farm track (approximately 1km east of the car park) to cross the bog, and then traverse to the col beneath Errigal. This would require a new car park and permission from the landowners to create a new route.

However, this option cannot mitigate the risk of people parking alongside the road by the current car park and using the shorter route. The 'long walk in' is only viable where there are no alternatives, and the presence of the road passing close to a potential route up Errigal is likely to be too tempting. This option is therefore not considered viable and has not been investigated further.

5.3 UP TO THE MAIN RIDGE

The scale of the damage is such that 'do nothing' is not considered to be a viable option and has therefore been discounted. The existing damaged zone would need to be reinstated to disguise the route and reduce the potential for water erosion, which means a significant amount of 'landscaping works' is required, irrespective of the option chosen for path repair. On the steep ground beyond the 'part way cairn' up to the main ridge there are two options that could be used to reduce the erosion and prevent further damage:

5.3.1 BLOCK PITCHING ON THE EXISTING LINE

This option would take the existing shortest line and the block pitching would need to be continuous for the whole of section 1 (170m length, 70m height) and most of section 2 (90m length, 30m height), owing to the steepness of the slope (>20° / > 40%). This option would require a large number of boulders big enough to create a series of irregular treads and risers, and may therefore need material to be flown in by helicopter, as there are insufficient on site. Any imported stone would need to match the quartzite on site.

POSITIVE ASPECTS TO THIS OPTION

This route would follow the shortest route, so may be attractive to some visitors.

RISKS ASSOCIATED WITH THIS OPTION

Extended lengths of block pitching can be very difficult for some visitors and tend to be unsuccessful if there is any possibility of walking on alternative ground, particularly for those going downhill. In this case it would be hard to retain people on the line as the slope is relatively open (i.e. no crags or cliffs).

In order to allow people to pass the pitching would need to be wide, which would add to the complexity of construction, and cost.

A continuous line of pitching would be difficult to disguise from a distance.

In icy conditions block pitching can be dangerous meaning that people may walk off the path. If they are wearing crampons this could have a negative impact on the restored vegetation.

EVALUATION OF THE OPTION

Although this would require highly skilled workers to implement, it is technically possible to create a route on this line. However, it is unlikely that visitors would use the route, particularly going downhill, which would mean that the investment would be compromised in a relatively short time. It is also likely that this option would require significant number of boulders being brought on to site by helicopter.

This option should be seen as a last resort and is not recommended.

5.3.2 NATURAL AGGREGATE AND BLOCK PITCHING ON A MODIFIED LINE

The extent of the damage zone is wide enough to consider a series of zigzags to reduce the gradient of the path, combined with short 'flights' of block pitching. The block pitching could be constructed within the scree, away from the 'easier' ground to discourage short cuts, and the zigzags would need to be irregular, with occasional block steps to help anchor material.

POSITIVE ASPECTS OF THIS OPTION

The overall lower gradient (relatively) and changes of surface means that people are more likely to stay on this route compared with the steeper option.

By varying the path width in places it will be easier to allow people to pass without needing to have a wide flight of steps. Short, wide 'landing' areas would allow resting space without compromising the construction.

RISKS ASSOCIATED WITH THIS OPTION

Poorly designed zigzags could exacerbate the visual impact of the path, if for example they were built at a constant gradient and/or were of equal length.

People could try to take short cuts between zigzags if the opportunity arose, causing failure of the route.

EVALUATION OF THE OPTION

This approach has been taken in a large number of places and works successfully. With careful design, and adequate supervision of competent contractors this could provide a sustainable route that protects the mountain and gives visitors a high quality experience. It would give people a varied ascent and descent, with some steeper sections on irregular steps and other parts on an aggregate surface.

5.4 ALONG THE RIDGE

From the stone shelter the route follows the crest of the ridge and is therefore constrained. This means that the damage is also restricted to a relatively narrow zone and cannot spread very far.

5.4.1 FULL CONSTRUCTION

A continuation of a fully constructed route would create a single robust path in a similar style to the previous section lower on Errigal. On steep ground block pitching could be used, with aggregate sections in between.

POSITIVE ASPECTS OF THIS OPTION

This would provide a robust walking surface, relatively easy to maintain with no navigational issues for visitors

RISKS ASSOCIATED WITH THIS OPTION

A continuous path would diminish the sense of 'wild' mountain top experience.

It may not be possible to prevent people from leaving the path – a single line may not meet the expectations of all visitors, and it would be very expensive, and intrusive to create parallel paths.

EVALUATION OF THIS OPTION

This approach would be likely to give visitors a 'managed' experience, reducing the sense of place. It may also be necessary to import materials in order to create, a continuous stable path to the full standards of the Upland Paths Manual. This is therefore seen as an inappropriate option and should be used only as a last resort.

5.4.2 LIGHT TOUCH / LOW VIZ WORKS

Judicious intervention through path definition, such as de-roughening a preferred route and blocking of braids, could help to reduce the visual impact of the paths along the ridge. On steeper ground some stabilisation of loose scree would be required along with landscaping to keep people on the preferred line.

POSITIVE ASPECTS OF THIS OPTION

This would be a 'low impact' solution that would potentially give visitors a sense of being on un-managed ground.

This could be a cost-effective solution, allowing resources to be concentrated elsewhere on Errigal.

RISKS ASSOCIATED WITH THIS OPTION

It may not be possible to define a single line along the ridge that will meet all visitors' expectations, meaning that multiple braids may remain.

The selected route(s) would need to be monitored and maintained to prevent development of new braids.

EVALUATION OF THIS OPTION

The low visual impact of this option would potentially give visitors a more positive experience of Errigal. With suitably skilled and experienced path workers this option could be highly effective.

5.5 COMPLEMENTARY ACTIONS

Although the damage to Errigal needs to be addressed as a matter of priority, there are other actions that can be taken that will help with the overall management of the mountain, reducing the impact of visitors, and potentially improving their experience of the area at the same time.

5.5.1 CAR PARKING AND ACCESS TO 'THE START'

It will be impossible to meet the total car parking demand for all visitors to Errigal without having an unacceptable impact on the environment and landscape, which means that alternative strategies are required. It is considered impractical to close the existing car park as it is located at the most direct approach point, and other car parking areas are unlikely to have sufficient capacity or provide advantages for managing access.

Car park capacity is a difficult issue – it is generally recognised that building a car park to cope with the busiest time is not good practice. A larger car park would be likely to attract more visitors and would not solve roadside parking, so this is not a viable option. The capacity of the car park should be a visual clue to the capacity of the mountain, even though many people will be unaware of that link. A small overcrowded car park may encourage some people to find alternative activities, whereas a large car park would effectively be an invitation to ever greater numbers. Therefore the present capacity is considered to be the maximum desirable size, and it is unlikely that permission would be

granted for a large expansion. From a road safety perspective it may be appropriate for the Council to place signs on the approach to the car park warning of pedestrians potentially on the road.

Members of the local community have suggested construction of a path from Dunlewey to the car park as an alternative to providing extra car parking spaces. Route selection for such a path could be challenging, but this would provide a clear link between Errigal and the local community, and may fulfil a recreational need for some visitors, reducing pressure on Errigal. A shuttle-bus service has also been suggested but it is not clear whether this could be a viable service, unless it were to be added to, for example, Glen Veagh National Park's bus service.

5.5.2 ALTERNATIVE RECREATION OPPORTUNITIES

At present Errigal acts as a 'honey pot' or magnet for visitors and it is likely that some people climb Errigal because they are unable to find alternatives. However, it would not be sensible to simply promote other unmanaged routes in the area in the hope of dispersing visitors and reducing the pressure on Errigal. This would be likely to cause future problems of path erosion in other areas unless the infrastructure is put in place before other routes are promoted.

An area-wide programme of path development (in areas with robust habitats and landscape) and path protection (where existing use is causing concern or erosion), may help to provide alternative experiences for visitors, and would also potentially have an economic benefit of retaining visitors in the area for a longer stay. The development of such a strategy is beyond the scope of this study, but similar principles of minimising the impact of visitors should be central to any considerations for paths in more remote areas. This will help to retain and enhance the special qualities of the area rather than impose inappropriate developments and negatively affect the visitor experience.

5.5.3 VISITOR BEHAVIOUR

The repair of the path and reinstatement of habitats will help to deal with the immediate issue of environmental damage but visitors to Errigal need to be aware of their own potential impacts and ways to minimise them. Influencing behaviour is a complex area of visitor management and requires sustained effort to be successful. The design of the path and associated landscaping will give visual clues about where to walk, but not all visitors will respond to the subtlety of these methods.

Clear information needs to be easily available to all visitors highlighting the pressures on Errigal and what people can do to help the long term management of the mountain. This involves making information available before their visit, at the start, and afterwards. Information could be conveyed through on-site interpretation at the car park, widely available leaflets and online.

It is not possible to control all messages that are communicated about Errigal, but a strong campaign to influence 'opinion formers' may help to align external messages with those from the 'managing body'. It may be necessary to monitor online information, and intervene where necessary to counter any misinformation or potentially damaging behaviour. This could include social media channels as well as websites – people sharing their experiences can encourage more people to behave in a similar way, which could be detrimental to the efforts to manage the paths.

An online 'presence' of a dedicated website would be a useful way retaining some control over what is communicated. This would allow other organisations and individuals to link to the site and promote the consistent messages that are required. Currently www.errigal.ie is registered to Enterprise Energy Ireland Limited, although there is no website linked to the domain, so this might be available through private negotiation. www.errigal.com is a mobile communications company in the United States, but www.errigal.net and www.errigal.org are available.

6 RECOMMENDATIONS

It is clear from the survey data that the damage caused by visitors and subsequent erosion by surface water will increase unless there is intervention. In places the damage is severe to the point where it is unlikely to recover for many decades even if visitor pressure were to be removed. Therefore a programme of physical works and educational activities is recommended to reduce the impact of visitors and change behaviour. The outcome should be an improvement in habitat condition, reduction in visual impact of the damage and an improved mountain experience for people.

However, the repairs to Errigal and educational activities should not be undertaken in a vacuum. They should form part of a shared vision for the mountain which places its long-term welfare at its centre. Any initiatives to promote tourism, enhance local infrastructure or changes to land management should consider the potential knock-on effects for management of the mountain. This means that the shared vision needs to be actively reviewed and monitored.

The implementation of repairs and restoration has a significant cost, but also potentially presents a number of opportunities. Although many of the opportunities are beyond the scope of this study, those relating to training, skills and employment are relevant to the potential implementation of the main recommendations. For this reason some consideration has been given to how these opportunities could be realised as part of visitor management on Errigal.

There are wider issues of visitor management that should also be considered, which include potentially providing alternative recreation opportunities in more robust parts of the landscape that could relieve pressure on Errigal. However, this would ideally involve the development of an area-wide approach to visitor management, which is beyond the scope of this study.

6.1 DEVELOPING A VISION FOR ERRIGAL

It is recommended that the stakeholders develop a joint vision for Errigal that recognises the high conservation and heritage value of the mountain and seeks to restore and enhance the fragile mountain environment. Without prejudice to the development of a shared vision by stakeholders, some issues that could usefully be addressed by the vision include:

- The need to develop a robust and sustainable route to the summit;
- The role of recreation and potential for people to contribute to the management of paths on Errigal;
- The need to help people to enjoy Errigal without having an impact on the mountain;
- The opportunities to build local and national capacity in path management;
- The potential impact of large-scale events on paths and habitats;
- The need for careful stewardship of the land to protect the designated habitats;
- The opportunities to improve the benefits to the local economy from outdoor recreation without compromising the environment;
- The role of Errigal in the wider demand for recreation in Donegal.

6.2 A ROBUST AND SUSTAINABLE PATH

The options appraisal (see Sections 5.2 to 5.4) points towards the stream-side path being the most sustainable approach route, which could be combined with work on the slopes and main ridge to construct and define a more sustainable path line. In some senses it could be argued that this is a ‘least-worst’ option rather than a ‘best’ option because any potential solution has uncertainties and there is no guarantee that every walker will follow the preferred route and behave as requested.

The key challenges in establishing a preferred line will be discouraging people from leaving the path and developing the route to fit within the landscape rather than impose structures on it. Understanding how walkers make route choices is an important factor in developing the route, and the design of key path sections and associated restoration of damaged ground will be critical to the success of keeping people on the route. Avoiding areas that could encourage

short cuts, guiding people away from sensitive areas and making the constructed path a more attractive than the surrounding ground are methods that have proved successful in other mountain areas.

There are two locations where particular attention needs to be given to design and implementation, and they will be critical to the success of the preferred line. These areas require a combination of high quality path definition and extensive landscaping to ensure that people are subtly guided to remain on the preferred line.

6.2.1 LEAVING THE CAR PARK

Aside from the issues of the car park itself, the first few hundred metres of the path can help to 'set the context' of the mountain experience. In this case it would be reasonable to build a path with a dry walking surface that is wide enough for people to pass without having to step off onto the blanket bog. However a path of uniform width with a smooth surface is not considered appropriate. An uneven surface with occasional boulders will give visitors a visual clue about the terrain they are heading for, particularly as many people may have just left an urban environment and are leaving the comfort of their car to climb a mountain.

FIGURE 3: VISUALISATION OF POTENTIAL PATH STYLE ON STREAM-SIDE SECTION (BEFORE / AFTER)

The stream-side route is undulating ground rising steadily and this can be carefully exploited to incorporate some boulder steps and more level aggregate surface sections. The surface should vary from 1.0 to 1.5m wide to allow people to pass in opposite directions, or walk side-by-side. A narrower path will fail when people use the 'verge' – it is too close to the start for people to walking in single file or designated passing places. Drainage features will be required to remove surface water from the path and to allow it to drain across the path without causing damage. The features should be made from locally sourced stone, preferably with a weathered top surface to help them blend with the landscape. A broad, scallop-shaped side ditch on the eastern side will help to minimise the amount of surface water reaching the path. The ditch should be lined with vegetation and follow an irregular line to prevent build-up of flow and potential erosion. The surfacing material can potentially be borrowed from beneath the path line and side ditch, but it is recognised that high clay content of glacial till can present some issues with initial settling and be susceptible to frost damage.

6.2.2 PART WAY CAIRN

For people descending, the cairn at 500m lies at a point where a choice can be made to take the existing 'direct approach' or the route to the col. At present the path is wide and highly visible so requires a conscious decision to turn off the direct approach. The difference in path length is only 400m, but the psychological difference is large as the preferred line heads away from the shortest route back to the car park. For this reason the landscaping and route alignment around this area will be critical. It is anticipated that the vast majority of visitors will have used the preferred line on their ascent, and this route will be visible from above. Providing that the direct ascent has been disguised / restored, the temptation to wander off the path and across the bog will be minimal for all but the most 'strong-willed' individuals.

6.3 IMPLICATIONS FOR LAND MANAGERS

The preferred line crosses a number of 'land parcels' and it is essential that landowners and shareholders are kept informed of progress, and involved as required, throughout the repair and management of paths on Errigal. The affected land parcels are:

DL32574	includes the path from the part-way cairn to the summit
DL34790F	includes the section from the col to the part-way cairn, also includes extensive vegetation restoration
DL37699	includes the stream-side path from the car park to the col

6.4 A PROGRAMME OF PHYSICAL WORKS

The physical works comprise two complementary elements:

- Development of a single path line, which is capable of withstanding the pressure of visitors
- Restoration of damaged habitats through landscaping and revegetating areas that are currently impacted

These works will need to be done mostly by hand using skilled labour and will need to be programmed around the main tourist season to avoid potential Health and Safety issues. In the early stages it is possible that the skilled labour will need to be imported, but over time locally based teams should be able to take on the work as capacity and experience increase.

6.4.1 PATH DEVELOPMENT

It is important to stress that there are no 'quick wins' on Errigal, and poorly planned or executed work may have knock-on effects for other parts of the mountain. It is not considered prudent, for example to 'drive' a path in from the car park as a linear project, ending at the top of the mountain. This would create problems as people 'drop off' the end of the route while it is being constructed – concentrating use on sensitive areas that currently have limited damage.

Recommended programming of path works is designed to allow some stabilisation of sections that will remain part of the preferred line and to prepare more sensitive sections by hardening or creating a robust walking surface. Timing of works also needs to take account of the busiest visitor periods to avoid endangering visitors on a work site.

The style of path repairs needs to reflect the location of Errigal and should aim to have the lowest visual impact. The walking surface should mimic a natural surface wherever possible, avoiding straight lines, parallel edges or regular features, including stone edging. The principles described in the recently updated Upland Pathwork Manual should be central to the design and implementation of a route and the construction should meet the standards set out in this Manual.

FIGURE 4: VISUALISATION OF POTENTIAL PATH ALIGNMENT AND LANDSCAPING ON THE RIDGE SECTION

All sections of the path should be hand-finished to deliberately introduce irregularities. Excavators should not be used beyond the col and should not be used for manoeuvring block stone into position. Tracking of excavators should be strictly controlled and all ground damage must be reinstated as part of the work to develop the stream-side path. Use of power-barrows / tracked dumpers must also be controlled to minimise the development of new trampled areas. This means that the lowest priced contractor may not be the most appropriate for the job and speed of working is likely to be detrimental to the quality of the path and associated landscaping.

A key part of any path development will be competent site supervision, where an experienced supervisor is engaged to help guide the path workers and maintain quality of work. This is not considered an optional part of path management on Errigal and needs to be let as a separate contract to oversee quality standards of the contractor.

6.4.2 HABITAT RESTORATION

As an integral part of the project an extensive programme of landscaping and habitat restoration will be required to disguise existing damage and to minimise the potential for future damage. In some areas loose stone could be removed to expose the original surface, but mostly there will be a need to re-vegetate denuded areas. It is common to 'borrow' turfs from one area to help establishment and disguise existing damage. However, on the slopes of Errigal the damage zone is extensive enough to require additional plants to cover the bare ground. The presence of the Special Area of Conservation means that any new planting must be done with locally sourced species, preferably using seed collected from Errigal itself. It is possible that some 'pioneer species' and local hardy grasses (e.g. fescue) could be used to help with establishment and provide early ground cover, while slower growing species are given a chance to establish through transplanting or possibly off-site propagation.

In some severely damaged areas there is no soil or peat remaining, and it may be necessary to introduce growing medium if plants are to become established. It is considered prudent to use peat 'scavenged' from any path repairs rather than importing anything from off-site. It is likely that habitat restoration works would take a number of years to become established and would be partly dependent on prevailing weather conditions for success. Any planting / seeding should be done early in the growing season to increase the potential for success, and supplementary planting / seeding may be required in subsequent years.

FIGURE 5: VISUALISATION OF POTENTIAL HABITAT RESTORATION OF THE 'MAIN FACE' VISIBLE FROM THE ROAD (BEFORE / AFTER)

FIGURE 6: VISUALISATION OF POTENTIAL RESTORATION AND PATH REALIGMENT (BEFORE / AFTER)

6.5 IMPROVING THE CAR PARK

As highlighted in Section 4.6, the car park gives a poor first impression for visitors and gives no 'sense of place' or arrival at a sensitive mountain environment. A full re-design is recommended to help to reduce the visual impact of the car park, improve the vehicle flow, increase parking efficiency and provide an opportunity to communicate with all visitors considering the ascent of Errigal.

It is beyond the scope of this study to undertake the design work, but some suggestions would include:

- Re-shaping the car park to fit more sympathetically with the location – removing the rectangular appearance;
- Using a traditional dry-stone construction for the walls, with cope stones rather than concrete cap;
- Building two access points for dedicated entry and exits;
- Placing a discrete road sign at the exit with directions and distances to nearby settlements;
- Marking parking bays to guide drivers to use space efficiently;
- Providing a space for interpretation about Errigal – why it is special, why people need to take care of it, what work has been done to look after it, where local services are located etc;
- Removing municipal signage and any advertising signs;
- Avoid having litter bins as they will attract more waste that they can cope with;
- Avoid having any seating or picnic space next to the car park.

6.6 AWARENESS-RAISING ACTIVITIES

Raising awareness of the recreational impacts and management of Errigal needs to be targeted at visitors when they arrive at Errigal and, perhaps more importantly, before they make plans to climb the mountain. They are therefore an integral part of managing the paths on Errigal, rather than an optional extra. The objective is help people to understand the special qualities of the mountain and to encourage them to change behaviour in order to reduce the pressure on sensitive parts of the mountain.

These activities should be enshrined within the Vision for Errigal, with commitments from different organisations to undertake relevant activities, and need to be integrated within existing and future communication programmes and initiatives, rather than seen as a short term effort.

6.6.1 CLEAR CONSISTENT MESSAGES

The most important aspect of communication about Errigal is the use of consistent messages about caring for the mountain and recreational activity. The communication will be required across a broad spectrum of media and will need to be sustained in order to encourage behavioural change among visitors. Registration of a relevant website domain is recommended and a site developed to communicate about the sustainable management of Errigal paths and the expected behaviour of visitors.

Key messages (across all types of media) would include, for example:

- Errigal is a sensitive environment and can be damaged through careless behaviour;
- There is a long term commitment to managing the recreational use of Errigal;
- It is expensive to manage the path on Errigal and contributions are welcome;
- Staying on the defined path is the best way to look after Errigal;
- Large groups can have a bigger impact than small ones;
- Errigal is near to the community of Dunlewey and a full range of visitor services are available;
- [After an area wide strategy is in place] There are alternative recreation opportunities.

Communication activities also need to consider how to influence 'opinion formers'. For example, website managers should be encouraged to adapt their content to be consistent with the sustainable management of the paths, and potentially link to the 'official' Errigal website. Event organisers must be made aware of the potential impact of their activities and where groups continue to visit, the group leaders need to be encouraged to take account of path management efforts.

Language is a sensitive issue and any interpretation needs to be mindful of policies to promote Irish language (e.g. Donegal County Council, 2010). However, it is likely that any signs placed at the car park would need to include English versions to successfully communicate with the expected range of visitors to Errigal. The importance of these messages to conserving the heritage of Errigal may outweigh the potential heritage value of promoting Irish language at the car park and fully bilingual signage would potentially be intrusive owing to the size of the signs required. Judicious use of relevant Irish words and place names on signs could be used to enhance interest in the language, rather than act as a barrier to communication.

6.6.2 ORGANISED EVENTS

At present the routes on Errigal are not sufficiently robust to cope with additional high volumes of visitors in concentrated periods, and it is questionable whether the level of construction necessary to cope with such demands is reasonable. Whilst the majority of events are organised to raise money for worthy causes, there does not appear to be any consideration of the impacts of these events, and the subsequent costs for repairing damage resulting from the event. This may need to be part of a wider programme of awareness-raising in Irish society about the implications of large charity events, but it is an important aspect of the long term management for Errigal that needs to be addressed as an integral part of the repair programme.

The *Gael Force North Event* deserves particular attention as it is essentially an endurance event that includes Errigal as part of the physical challenge. The descent by competitors on section 2 is having a visible and rapid impact on Errigal, and is likely to cause further deterioration if it continues to be used. Whilst it is understandable that participants in the race wish to complete the event competitively, they need to have some consideration of their impact on the environment. In 2014, for example the fastest descent from the summit was 9:43 and 340 competitors took part (source gaelforceevents.com).

A more fundamental question is whether it is appropriate for Errigal to be used for this type of 'challenge' race, and if so, whether additional management controls need to be put in place to minimise the impact of the event itself. Notwithstanding that decision, the steep section 2 and 3 need to be closed down and a diversion via the main route enforced with marshals during any event.

6.7 DEVELOP DUNLEWEY AS A 'RECREATION HUB'

One of the key challenges to protecting Errigal is managing recreational demand and integrating the competing pressure of tourism development for the area. It is recommended that any calls for development of facilities on site at Errigal be resisted and that a positive alternative be considered – using Dunlewey as the focal point for visitors to Errigal.

Developing Dunlewey as a 'hub' for visitors to Errigal, and the wider area, has the potential to deliver the complementary actions in a coherent way. Interpretation at the car park could be 'lightweight' – enough to provide

information about Errigal itself – but with a strong link to a visitor hub in Dunlewey, where visitor facilities and wider information could, for example, be installed in the community hall. This hub could be widely promoted (including on the website) as the first point of call and could provide complementary services such as toilets and changing/ showers facilities. It would provide a means to deliver many of the awareness-raising activities suggested in section 6.6.

With the hall as a hub development of an off-road route to the Errigal car park could be more viable (with more demand for the route). There would also be opportunities to promote alternative routes in the area that could be developed to provide a range of high quality recreational experiences – those with fine views of Errigal could potentially remove the 'casual' pressure on the mountain, where people would have a better view of the landscape than from Errigal itself.

Links to the Wild Atlantic Way could potentially provide an additional means of managing visitors, especially if tied in with Glen Veagh National Park visitor centre. Drawing visitors to Dunlewey directly from the coast rather than Letterkenny direction would have an important role in intercepting visitors before they reach the car park. This would give them a better range of options at the start of their visit which would potentially remove pressure from Errigal, whilst still gaining the benefit of tourism in the area.

The development of a visitor hub potentially gives a strategic approach to the area's tourism development, with Dunlewey hall becoming the focal point for Errigal, instead of the car park. This would counter any demands for additional infrastructure at the car park and the integration of a hub would be innovative, potentially attracting other sources of funding that may not be easily forthcoming for 'environmental protection' focussed projects.

6.8 Monitoring and Maintenance

The repair and restoration of damage to develop a preferred line is only part of the solution to Errigal's erosion problems. If the path is not adequately maintained it is very likely that another cycle of deterioration will begin and the investment will be compromised. Experience from other mountain areas shows that lack of maintenance is the biggest cause of path failure, and that appropriate maintenance is required to help ensure that paths can be resilient to the predicted effects of climate change (Walking-the-Talk, 2011). However, experience also indicates that securing funding for maintenance can be challenging, and is often seen as an easy target for 'efficiency measures'.

An outline estimate for maintaining the completed route is 15 person-days per annum, although this may vary from year to year, depending on levels of use and any extreme weather events. This is not an optional extra to repair and restoration; it is an integral part of the investment and a commitment must be made.

It may be appropriate to seek contributions from walkers towards the maintenance of the path, alternatively businesses that benefit directly from Errigal, or use it as part of their promotional material could be approached to contribute to its care. This income should only be used to offset the cost of ongoing maintenance once an endowment has been created and reserved for more extensive repairs that may be required periodically, such as after major storm events.

Although the maintenance may appear to be a relatively small commitment, this is deliberate to ensure that resources are adequate to maintain the agreed standards of the path but not available for other works such as 'improvements' to path surface for the comfort of walkers. It is important, therefore, that the maintenance of paths is integrated into the Vision for Errigal.

One of the key challenges in the 'Maintenance Phase' is retention of skills and capacity within the local area. Use of unskilled labour, or inappropriately trained people can have long-term negative impacts for the path and should be avoided, however tempting it may appear.

An important decision-making tool for the path manager is monitoring data. This can be done with a combination of trained individuals inspecting the path on a frequent basis (e.g. volunteers) and a competent person to assess the outcomes of the inspections. An example of this type of approach can be seen at www.outdoorcairngorms.co.uk. Fixed point photography is probably the most useful means of capturing path condition information, although this

does not have to be done with the same precision as time-lapse photography – GPS locations and orientation data would be sufficient to generate high quality monitoring images. The images should include areas of landscape remediation as well as the path itself.

An inspection regime will ensure that minor problems are identified and rectified early, and should be a cost effective way of targeting the maintenance resource. This could include early identification of off-path activity and remedial works to retain people on the path. Those involved with inspections could also be trained to undertake minor tasks (such as clearing debris from drainage features) so that developing issues are intercepted before they have a negative impact on the path. Care needs to be taken to ensure that volunteers are appropriately trained and understand the Vision for Errigal and the objectives for maintenance. Complex repair tasks should not be undertaken without skilled supervision.

6.9 PATH MANAGEMENT CAPACITY

Ireland does not have an established upland path 'industry' and there are no known specialist contractors currently operating in the country who could deliver the recommendations of this report. It would be possible to import skilled workers from, for example the United Kingdom, and restore the damage on Errigal, although this may not be seen as desirable. It may be possible to undertake some maintenance using existing skills base, but it would be necessary to bring in expertise for any significant repairs that may be required over time.

Although the short term cost of training locally based people is likely to be higher, and developing the capacity to be 'self sufficient' in path management may delay the completion of the restoration phase, compared with solely using imported contractors, there are a range of reasons why it may be desirable to take this approach. Developing the skills locally would mean that they could be applied to other sites, and would be transferrable to the maintenance phase, potentially securing the long term sustainability of the route. There are also social and economic benefits to using a locally based workforce.

Repairs that are done by contractors could potentially be managed in a way to help build capacity at the same time, but would require some innovative procurement and contract management procedures. Consideration should be given to 'capacity building' clauses in any contracts so that contractors are required to train identified individuals who will potentially have a long term working relationship with Errigal. These individuals could, for example, be recruited ahead of the contract being tendered, as part of a training scheme and would be selected for their aptitude to this type of work. This would mean that the contractors could include an 'overhead' for developing the capacity on a transparent basis, with mentoring support for the trainees provided through the client. Some investigation of procurement rules will be necessary to find an acceptable way of letting a series of contracts (to avoid the need for 'bundling' all the repairs into a single project under EU rules) that can also include the socio-economic dimensions of capacity building. This may mean that Donegal County Council is not the most appropriate body to let such contracts.

It is recommended that a programme of specialist training be developed to generate a pool of workers with the aptitude and skills to sensitively repair and restore mountain paths, using established techniques, but adapted to the local conditions. A suitably experienced trainer will be required to implement the training programme, which could potentially be adapted from the Scottish Vocational Qualification (SVQ) in Environmental Conservation currently used by Cairngorms Outdoor Access Trust and the National Trust for Scotland.

It may be appropriate to share resources with other areas to benefit from economies of scale and to secure employment opportunities in the long term. Establishment of an overarching body covering a wider area (e.g. Donegal, or Ireland) may help to ensure that a more consistent approach to Upland Pathwork is taken, and it is recommended that this option also be investigated.

6.10 PRIORITIES FOR IMPLEMENTATION

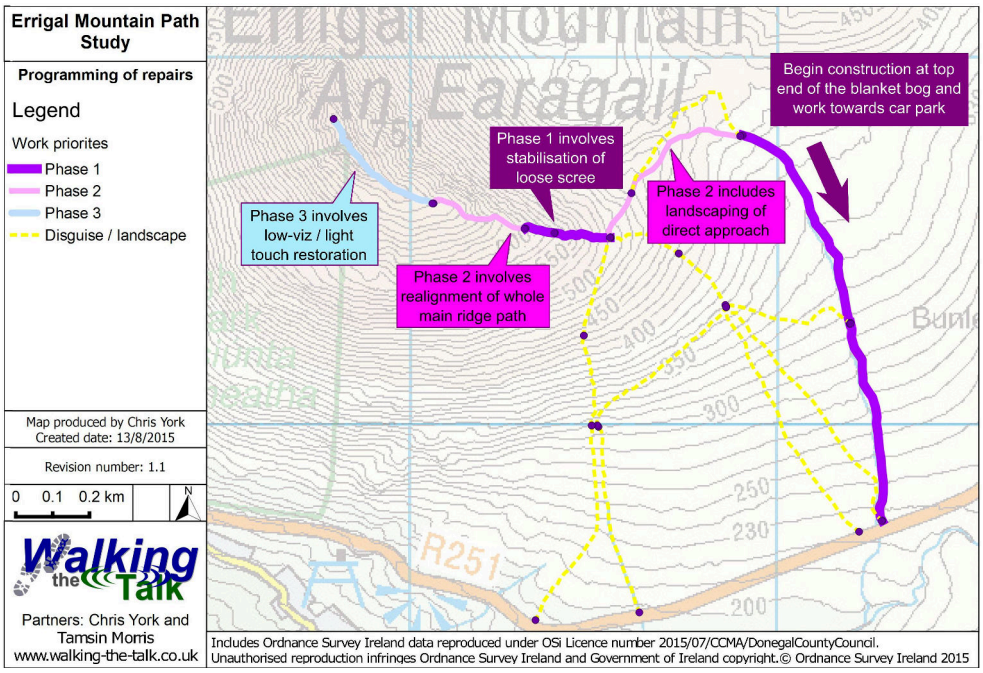
The recommended implementation programme does not directly reflect the scale of damage and potential rate of deterioration on each path section, instead it attempts to balance the needs of reducing the damage with creating a sustainable route, whilst allowing continued use of the mountain.

The two highest priorities (phase 1 in Figure 7 below) are to stabilise the steep and loose section of the main ridge, and to develop a robust approach route. The most appropriate place to start the approach is actually furthest from the car park. This will allow construction to take place without encouraging visitors to use the path before it is completed – the work should proceed downhill towards the car park.

The following stage (phase 2) would be to develop the path from the col to the part way cairn. This would then lead to the realignment of the steep path on the ridge to avoid the possibility of short-cutting, with the parallel work to landscape over the top part of the direct approach near the part-way cairn and across the bog near the car park.

The low viz work on the ridge can be completed in the final stage (phase 3) along with the remaining landscaping.

FIGURE 7: PRIORITIES FOR IMPLEMENTATION - PROPOSED PHASING OF WORKS



7 COSTS

Estimated costs have been developed based on potential costs of engaging experienced contractors and should be seen as a broad budget guide. However, these costs cannot take account of local conditions and potential market forces in a situation where there is limited availability of suitably experienced contractors. They are mainly based on estimates of labour input for different construction techniques and potential to use machinery for some tasks. The costs also include the use of an experienced upland path site supervisor, which is a vital part of the delivery mechanism to ensure quality outputs irrespective of how the work is implemented.

The costs do not reflect the opportunities to build capacity and further work would be required to investigate the overall cost of setting up training, engaging experienced team leader(s) and delivering a programme of works partially or wholly through a training scheme.

The costs of awareness raising activities or car park alterations have not been calculated as these aspects are considered to be beyond the scope of the brief.

7.1 RESTORATION PHASE

Section	Approximate quantity	Estimated cost
Design specification	3,300m	€5,000
Stream-side (across the bog)	1,750m	€150,000
Up to the part-way cairn	550m	€80,000
The steep climb	300m	€60,000
The ridge	700m	€65,000
Habitat restoration	4.5 Ha	€140,000
Total		**€500,000**

7.2 MAINTENANCE

An annual working budget of €5,000 should be identified at the outset, and this needs to be transferrable across financial years to account for the potential variance in work requirements that cannot be predicted easily. This budget would cover the cost of skilled labour to undertake maintenance tasks and could contribute towards the cost of training volunteers to monitor the path once repaired. This budget is not anticipated to be used to 'improve' the path, but to focus on maintaining the integrity of the repairs and landscaping work.

8 NEXT STEPS

There are a range of issues that need to be taken forward to progress the restoration of recreational damage to Errigal and there may be competing priorities for action that need to be addressed. Some potential actions are co-dependent and some decisions may lead to different opportunities being taken.

- Develop a Vision for Errigal
- Investigate training and skills development
- Develop a communications strategy
- Apply to relevant funding agencies
- Engage an experienced upland path specialist to produce detailed designs
- Implement a training programme using Errigal as a 'live training site'
- Implement contract works where local capacity is unable to deliver
- Deliver communication activities
- Implement an ongoing programme of maintenance

9 RISKS AND BENEFITS TO THE SAC

The entire area of damaged habitats on Errigal lies within the SAC and are self evidently not in favourable condition. However, as a proportion of the designated site recreational damage probably does not significantly compromise the integrity of the site.

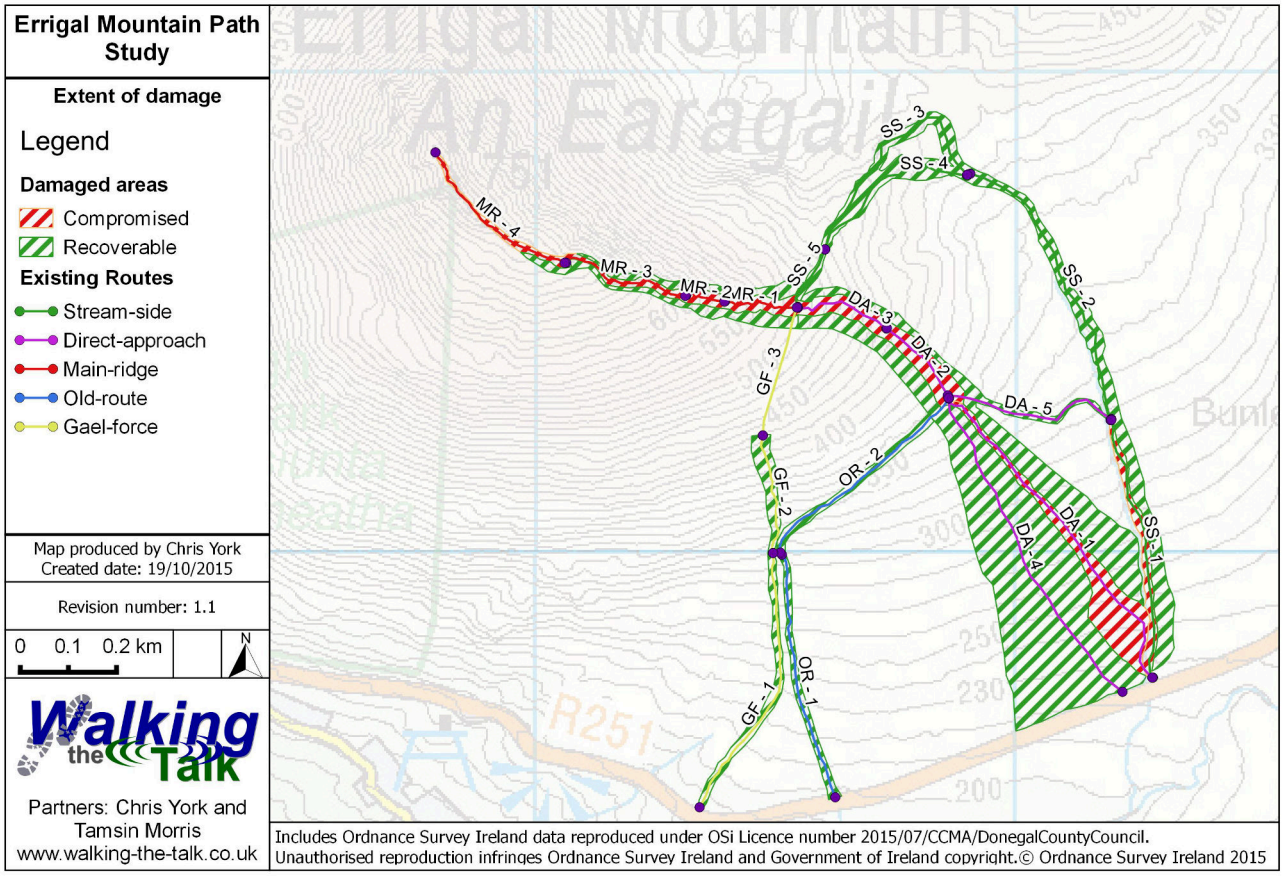
The following habitats are qualifying features of the SAC (greyed rows are not present on Errigal), and they are 'Annex I' habitats (meaning that they are of European importance / priority for conservation):

Habitat	Description	Relevance to Errigal
3110	Oligotrophic waters	
3260	Water courses of plain to montane levels	
4010	Northern Atlantic wet heaths with *Erica tetralix*	Fringes the Blanket bog (where peat depth is less than 50cm)
4030	European dry heaths	On drier ground, mostly above the wet heath
4060	Alpine and Boreal heaths	High altitude vegetation – near the summit and ridge
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caerulea*e)	Areas within the blanket bog are dominated by Molinia (purple moor grass)
7130	Blanket bogs (* if active bog)	This covers the area from the road to the foreslope
7150	Depressions on peat substrates of the Rhynchosporion	

Habitat	Cover [ha]	Data quality	A|B|C|D		A|B|C	
			Representativity	Relative Surface	Conservation	Global
3110	1338.39	M	A	B	A	A
3260	334.6	M	C	B	B	B
4010	3345.98	M	A	B	B	A
4030	334.6	M	B	C	B	B
4060	2007.59	M	B	A	A	B
6410	334.6	M	B	B	B	B
7130	19072.1	M	A	A	A	A
7150	334.6	M	A	B	B	A

The survey results highlight that approximately 7 hectares (c17 acres) of land are severely impacted and a further 26 hectares (c65 acres) are moderately impacted (see Figure 8). Of this total, 30 hectares of damage are on blanket bog, which is approximately 0.1% of the blanket bog in the SAC. The assessment highlights that the damage is unlikely to recover without intervention, and may become more widespread with continuing unfettered use of Errigal.

FIGURE 8: EXTENT OF VEGETATION DAMAGE DUE TO RECREATION



If the recommended options were taken forward this would result in a path surface covering approximately 0.3 hectares from the car park to the summit (based on a width of less than 1m on average), and once the damaged habitats were restored, there would be a net reduction of approximately 32 hectares of impacted habitats. This area will be returned to favourable condition through the sensitive landscape restoration works, although it will take a period of five to ten years for recovery to become fully established.

A detailed assessment of materials 'borrowing' and planting will need to be undertaken before consent can be given by NPWS, and it is unlikely that there is sufficient plant material within the damaged zone to provide a stock for landscaping (such is the scale of the damage). This means that some borrowing will be required from undamaged areas at higher altitudes but the net benefit of these techniques will help to ensure that the currently damaged area is restored to favourable condition. It should also be possible to seed native and locally occurring species, and some propagation and transplanting of locally collected seed could be done to supplement the stock. These techniques have been successfully used within SACs in Scotland (e.g. Ben Lawers) to restore recreational damage and it is likely that Scottish Natural Heritage's Advisory Services staff would be able to assist with the appropriate assessment of any proposals.

10 REFERENCES

Donegal County Council (2010). Donegal Local Authorities Scheme 2010-2013 under the Official Languages Act 2003. Available at:
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