

Croagh Patrick Footpath Condition Report

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1. Introduction

1.1. The report - aims and objectives

This is a short report on the condition of the footpath leading from the village of Murrisk to the summit of Croagh Patrick and looks at exploring the possible options available to minimize the impact of walkers on this landscape. The report is based solely on the personal experiences of the author from similar paths and works undertaken on upland paths in the UK and in particular in Snowdonia in North Wales.

The author was invited by Mountaineering Ireland to view the path in June 2012 and to suggest recommendations and options for future management of the path and for possible restoration work to ameliorate the impacts of erosion caused by walkers and other recreational users.

A stakeholder meeting took place on the evening before the site visit, facilitated by Murrisk Development Association and with many additional stakeholders represented including the Church, landowners on Croagh Patrick, local archaeological interests, Mayo Mountain Rescue Team, Mayo County Council and Fáilte Ireland. This provided an invaluable insight to both the cultural issues and the expectations of the local community, as well as putting the history and development of the path into context.

The path is in a significantly degraded state and the visual impact of the erosion is highly visible both from near and distant views.

This mountain and the nature of the users are significantly different from any other comparable site in Western Europe. Other than possibly on Snowdon in North Wales there cannot be many other sites where a relatively wild and natural mountain is climbed by so many inexperienced and ill-prepared walkers.

The report is simply one person's opinion and not all of the recommendations or options will be favourable to everyone. The practicalities and not least the availability of funding to carry out any remedial work are briefly explored, but the scale and magnitude of erosion and degradation of the path surface is considerable and while the emphasis is always on the least intrusive and least interventionist approach, looking to conserve the natural character and challenge of the mountain, the reality is that on this path significant engineering works would be required to control and manage the ongoing erosion.

The options for restoration work on the eroded path are considered in Section 3 of this report. However there are other wider management issues which also need to be resolved

in order to secure the long term conservation and protection of the mountain environment at Croagh Patrick. These are considered in Section 4 and 5.

1.2. Geographic location

Croagh Patrick (“the Reek”) is located five miles west of Westport in County Mayo on the west coast of Ireland, overlooking Clew Bay. Its summit is at an altitude of 765 metres above sea level and its summit is the highest point of a broad ridge with a series of smaller tops running in an east-west direction south of the village of Murrisk. The summit itself forms a distinct steep cone towards the west end of the massif. The main and by far the most popular path to the summit commences at the car park and visitor centre at Murrisk and ascends initially directly southwards at a gentle angle beside a stream through enclosed land until it emerges onto a more flat “alp” of open moorland. The path then ascends more steeply in a curving line ascending the east side of a shallow valley, increasing in steepness to the shallow col on the ridge. The path then follows the broad ridge for approximately 500 metres before ascending the steep summit cone, over loose and extremely eroded scree slopes for a further 500 metres. The whole path length is approximately 5 km. It is significant to state that the path is used as both the main path for ascent and descent by the vast majority of walkers – which means that most walkers cover the path twice and any estimate of numbers climbing the mountain needs to be doubled to give an accurate estimate of actual footfall on the path.

For ease of identification and in line with the nature of the works that may be required to consolidate the erosion, the path has been divided into five distinct sections and these are detailed in Section 2.

There are other paths that also lead to the summit, notably one from the south that leads to a junction with the main Murrisk path just before the summit cone scree slope. Although use of this is currently very low in comparison to the main path, due to the peaty soils and evidence of increasing use (there is anecdotal evidence that this may be due to organised challenge events) erosion is visible at some specific points on the route, especially towards the upper areas as it traverses westwards before the junction with the Murrisk path.

1.3. Historical & Cultural background

Croagh Patrick is absolutely unique in its cultural status – it has international significance as a religious and spiritual summit and its popularity is a direct consequence of this status. The mountain is named after St Patrick who is reputed to have spent forty days and nights on the summit in 441 AD, and is the location from where he banished snakes from Ireland. However long before the arrival of Christianity the summit of Croagh Patrick was occupied by Iron Age hill forts, complete with ramparts and dwellings. The whole of the summit area and its surroundings have significant archaeological interests while a number of archaeological features, ranging from ancient walls to dwellings and religious stations are found all over the mountain and adjacent to the main path. It is imperative that a competent and qualified archaeologist is consulted prior to the commencement of any path

works on this mountain to ensure that these features are correctly located and not adversely impacted by any path works.

The religious status of the mountain also has an influence on the nature of works that may be acceptable on this mountain. The annual pilgrimage on Reek Sunday sees an estimated 30,000 individuals ascending the mountain in one day. Many of these individuals see this as a purely religious pilgrimage and regard the challenge of ascending a worn and difficult path as part of the pilgrimage and would not want to see the challenge reduced by over-engineered path works. This pilgrimage is one of Ireland's most significant cultural events and is reputed to date back at least 1500 years and is one of the most extraordinary surviving pilgrimages in Western Europe.

Any path works would need to ensure that the sanctity and religious significance of the route are fully appreciated and the views of the pilgrims and their representatives would be a significant factor in determining what path works were acceptable here.

1.4. Recreational Users

A significant percentage of the walkers who climb Croagh Patrick are pilgrims, arguably the vast majority. It's estimated that in excess of 100,000 people ascend Croagh Patrick each year, with possibly as much as 30,000 on Reek Sunday alone. However this is probably a very conservative estimate and of course it has to be considered that the path is both the main ascent and descent of the mountain, effectively doubling the actual footfall on the path. This is in contrast to most mountain peaks where walkers tend to ascend by one path and descend by another.

It is a fact that most of these are not experienced mountain walkers, will often not have the appropriate mountain equipment or any other mountain experience and while they may well enjoy and appreciate some of the mountain experience, the main purpose is to partake in the pilgrimage and visit the shrine on the summit.

However Croagh Patrick is a fine mountain peak in its own right, with tremendous views over both Clew Bay and the Connemara hills to the south and many walkers are attracted to the mountain for this reason alone. It does provide an excellent ridge walk with tremendous views and (once away from the main path) some very isolated walking.

The mountain is undoubtedly a major tourist attraction draw for the area – the continued deterioration of the path and any poor or bad experiences by visitors caused by this could be detrimental to future visitors and for return visits. Although by now, the mountain is such an established icon that most visitors will continue to visit and attempt the walk.

An increasing phenomenon of recent years is the number of people ascending the mountain as part of charity or sponsored challenge events. There are both benefits and dis-benefits to this. A benefit is that, theoretically participants will be better prepared for the challenge, be provided with better information prior to the event by the organisers and

have a single point of contact. In practice this is not always the case and there is currently no formal or organised means for all these groups to co-ordinate their events to prevent clashes or liaise with the local community. A major concern is the number of people who use the route to train for such events – with multiple ascents prior to the actual challenge, further increasing the pressure on the mountain. There is also a significant commercial element to these events – organisers receive income from hosting these events but the landowners or the local community rarely receive any direct financial benefit.

It's recommended that a group or forum is established between the local community/mountain rescue/ event organisers to establish the scale and extent of the matter of organised events and to come up with a code of best practice, similar to the Institute of Fundraising's code of practice for the UK Three Peak challenge events. Mountaineering Ireland's Policy and Guidelines for Organised Events in Ireland's Mountain Areas also provides a relevant and useful framework for addressing this issue.

Although not recreational users as such, Mountain Rescue is a significant stakeholder. They have to deal with the consequences when visitors to the mountain get into difficulties. As the path is so obvious there are few calls to lost people. Most incidents appear to be the typical lower leg injuries, often sustained by walkers descending the mountain. There does appear to be an accident "hot spot" for incidents some half way up on the so called "bad bend" on the final summit cone, where the path is at its steepest and arguably most unstable underfoot. However the total number of incidents is surprisingly low given the number of inexperienced and ill-equipped walkers who attempt (and succeed) to climb the mountain. Mayo Mountain Rescue Team on average deals with some 35 incidents a year together with a further (with other rescue teams) up to 50 incidents on Reek Sunday alone.

There is a prominent lack of a single up-to-date portal for information for those wanting to attempt to climb the mountain – the on-site information signs are dated and refer to the mountain's religious and cultural interpretation rather than modern, practical mountain safety information. Croagh Patrick also falls across Ordnance Survey map boundaries and would require the walker to purchase several maps to get complete coverage of the mountain. This deters many from buying any maps, and the vast majority of casual walkers will not have an accurate or reliable map.

It's recommended that a single definitive leaflet with a quality map is produced, replicated on information boards at the start and on appropriate websites, showing the route and giving mountain safety advice, including what to do in an emergency. This could be produced by the local community and sold for a fee. A major issue is that many people underestimate the effort and scale of the undertaking - many being unfit or not used to mountain walking at all. Very basic advice should be given to participants of the need to prepare for this walk well in advance – to get used to walking on uneven ground, on steep terrain, both up and down.

1.5. Conservation issues

The mountain currently does not have any statutory or legal conservation protection or status. There is a proposal that it becomes a Natural Heritage Area but it's not known what if any impact this would have on the day-to-day management of recreation or the footpath network.

However it's clear that there are many features of conservation interest on the mountain. The geology and geomorphology itself represents a very interesting and typical range of semi-stable western oceanic acid scree slopes, post glacial features, stone stripes, erratic rocks and similar features. The damage to the semi-stable scree slope on the summit cone is considerable and appears to be worsening. The vegetation types and habitats supported by these scree slopes are restricted to few other sites in Western Europe - and include some elements of "montane" heath including dwarf juniper, some rare sedges such as a Stiff Sedge (*Carex bigelowii*) as well as bilberry, heather and other ericaceous plants. The archaeology will also undoubtedly be compromised as the path widens and adjacent features become damaged by the widening path. It has been suggested that stocking and grazing levels may have an impact on the erosion and vegetation cover – however there was no evidence of this on the visit, and the actual path erosion and the soil and vegetation loss is directly as a consequence of the sheer volume of people over many years, allowing surface run-off water to also have an impact.

1.6. Ownership and tenure

It's understood that the mountain is privately owned, with parcels of individual land and also commonages. Most of the pilgrim route is through two commonages, one with 46 shares and another with three shareholders. There may be some individually owned land at the bottom section of the path, and higher up the path is close to, or possibly slightly within, an area of individually owned land on the northern side of the mountain. While there has been a very long tradition of access to the mountain from Murrisk there is no existing legal right of access on foot. If the landowners were agreeable, there could be options under the Planning Acts to declare the route a public right of way. This would put a responsibility on the local authority to then maintain the path in future years.

2. Route Description

2.1.1. Section 1 Car Park to Fence-line

Then path departs the made up highway by a series of formally constructed steps which lead to the statue. From here the path continues beside a stream for some 500 metres to the mountain fence. The path is naturally constrained between the stream and a high bank and is at a gradual angle of approximately 15° . The soil is mainly glacial boulder clay with brown mineral soils at this point. It varies in width from about two metres up to five metres with a soil loss in places in excess of 1.5 metres. There are several braided paths with isolated “pockets” or “islands” of turf. The braiding is deeply gullied in places and appears to be worsening. There is no formal drainage and water damage and water flow along the gullied braids is very evident. The path surface is generally made up of loose and unconsolidated stones, often wet with surface water and in places very worn and uneven base rock is exposed making for a very uncomfortable walking surface which walkers try to avoid, exacerbating the problem.



Section 1 – Looking northwards down the path to the start – braiding and turf “islands” very apparent, as is lack of any drainage. During heavy rain this would resemble a stream.

2.1.2. Section 2 Fence-line to start of steeper path

This section of path lies close to the stream and is some 500 metres in length. Although in general the erosion here is not as severe as the initial section, the path has several different lines, all cut deeply into the mineral soil. There are several different path lines in a fairly narrow (less than 10 metres wide) corridor. As the path ascends the mountain to a more level section the erosion worsens considerably and just before the point where the path reaches a level section the path splits and a large erosion scar has been formed, which could imminently and catastrophically worsen if the “island” of remaining turf and vegetation were to erode further.

The path then crosses a more level area, widening as the angle eases. The depth of erosion and soil loss here is less severe than the lower sections, however this is offset by the width of the path at this point, as the terrain and gradient allows walkers to spread out. The path is up to 30 metres wide at this point but appears to be relatively stable.



The large “turf island” halfway along Section 2 before the path levels out.



Looking northwards down the lower section of Section 2 – this is just below the turf island shown above

2.1.3. Section 3 Path to col

The path steepens appreciably as it rises up the side of the wide ridge. The path follows a steepening line, “cut” in to the side of the hill, in a gentle curve overlooking a shallow north facing valley. The angle here is approaching 30° and the upper eroded edge of the path is in excess of 3 metres high in places. This upper retaining edge of the path is severely undercut and is providing a constant source of loose and unconsolidated material which then gets washed out of the path, and onto the grass and heather slopes below the path – creating a visual eyesore but also covering the vegetation and inhibiting growth creating further erosion. The problem is particularly acute just over halfway up the slope, as the path ascends past a slight rocky section. The path here is in excess of 25 metres wide, with as much as 3 metres of (continually eroding) retaining bank on the top side.



Looking north down the upper part of Section 3 – in the middle distance, the upper part (the least eroded section) of Section 2 is clearly visible.



Section 3 Looking southwards up the mountain towards the col – a distance of approx 500 metres.

2.1.4. Section 4 Route along ridge to base of cone

This is the most level section and the least eroded section of the path, as the path changes direction and heads almost directly west along the col to the base of the cone. There is some erosion and some subsidiary paths have formed but in general the problem is not significant along this section.



The “bad step” on section 5 – with a view showing the least eroded part of the whole path (Section 4) which is clearly visible leading from the base of the cone to the col.

2.1.5. Section 5 Summit cone

The summit cone is a geomorphological feature of some significance – being composed on the east side of a steep block scree slope – which in its natural state would provide an important and significant habitat of stable scree and “montane” habitat. However the path along the south-east ridge ascends initially up an eroded scar before a slight turn northwards up the final steepening leads to the summit dome. The path is obviously highly mobile – both underfoot and in the medium term it also appears to be slowly eroding and migrating in a northwards direction, cutting into the scree slope creating an unstable bench (or cutting) on its north side, leading to more unconsolidated material on the path surface. The upper loose and eroding retaining wall of the path here is in excess of 2 metres high, and unless this “retaining” wall is consolidated the path line will continue to migrate northwards creating more erosion and loose material and irrevocably damaging what is arguably the most important nature conservation feature of the mountain. This is also the location for most mountain accidents – it’s the steepest and loosest section and is particularly treacherous for ill-equipped and inexperienced walkers in descent.



Section 5 The “summit cone” with the line of the path following a steep scree slope – the width of path here is in excess of 30 metres and is clearly and actively “migrating” into the ecologically sensitive and important scree slope to the north (right) of the path.



Close up of the actively eroding “edge” of the path up the summit cone – the rate of erosion here appears significant but could be determined by monitoring.



3. Path repair options (including timescales)

This section gives an indication of the sort of approaches that could be used to control the erosion on Croagh Patrick – it's only a brief and indicative suggestion – a more comprehensive and detailed schedule of works and specification would require a much more in-depth survey taking several days to compile and several visits in varying weather conditions (especially during high rainfall) and to study how walkers currently use the path.

3.1.1. Section 1

This section lends itself well to traditional stone pitching technique – the path would need to be narrowed and a stone pitched path, contained by the natural topography of this section would be a durable and sustainable solution to the problem of erosion. A large number of water bars and open stone pitched drains would need to be constructed to take water off the path to the nearby stream. The path width could be narrowed to a maximum average width of 1.5 metres but care would need to be taken to ensure that that path would not be too formal or of uniform width. The exact line of the path would need to be a flowing, slightly curving line, avoiding a straight line. The eroded areas would need to be recovered by using and transplanting turfs and vegetation from adjacent stable slopes, being careful not to create erosion at those points. The main logistical issue would be that of availability of stone – a stone pitched path of this magnitude would require approximately a half of ton of suitable stone (both in colour, texture and geological type) per metre. As suitable stone is not found on site this would require it to be airlifted in by helicopter, and a minimum of 300 separate 500kg bags of stone would be required. This would be roughly seven full days of helicopter time, costing possibly as much as €10,000 for the helicopter time alone. A team of four skilled people with machinery (including mini-diggers and mechanical tracked wheelbarrows) would require at least six months to complete this work. The labour costs for this would be in excess of €75,000. So in total a contingency of over €100,000 would be required to complete this section alone.

3.1.2. Section 2

Parts of this section (the steeper sections) also lend themselves to stone pitching, but in addition a number of paths need blocking off and shallow retaining walls built on the top side of the path. These retaining walls would consolidate the path sides and prevent loose materials being washed on to the path surface. As with the previous section a full survey and specification would be required to identify where cross path drains and water bars were required. Again this section would require additional stone to be imported, but probably only about 150 500kg bags of stone. Again some €75,000 of labour would be required.

3.1.3. Section 3

This is a very difficult section to work on due to the steepness and scale of the problem. It's highly impractical to consider stone pitching the whole path surface to the col – the scale is just too immense and the amount of stone that would be required to be airlifted is of a magnitude and cost that cannot be justified. Pitching this section would also change the character and nature of the path and the challenge that is Croagh Patrick. However the ever-eroding upper retaining wall is providing a constant source of loose unconsolidated material on the path – consolidating this retaining wall and providing a number of cross path drainage channels and water bars is the priority here. Again stone would need to be airlifted in and very shallow retaining walls constructed on the top side of the path, the walls constructed using turf as “mortar” which in time would grow to obscure the walls and provide more stability. Again there is at least six months of work for a team of four skilled persons here plus the need for some 200 500kg bags of stone.

3.1.4. Section 4

This section needs very little work at this time and it's suggested that no work is done here at this time.

3.1.5. Section 5

This is the most isolated section – and the logistics and practicalities of working at this exposed and remote section have to be taken into account when considering options here. As with the previous section to the col, the option of stone pitching the whole section is technically possible but impracticable both from a logistical perspective and from an aesthetic and challenge perspective. The challenge here is to prevent the slow but steady and marked migration of the path by providing a stable and durable retaining wall to the north side of the path. It's possible that sufficient stone exists for this to be constructed without resorting to importing stone here. As with the other sections, the exact locations for stone drains need to be identified by several visits during times of heavy rainfall. A critical factor in the construction of the retaining wall is ensuring that the retaining wall does not get undercut by erosion from water and walkers - and it's possible that some sort of simple pitching may be required along the base of the retaining wall. Ideally more formal pitching would be required at the so-called “bad step” to stabilise the path surface and prevent the ever-eroding path from cutting further into the scree slope. Due to the complexities of working at this level

and the steep nature of the terrain there is at least 12 months of work on this section alone for a team of four people.

4. Stakeholder support and engagement

There are a large and diverse number of stakeholders involved with and who have a legitimate interest in Croagh Patrick. The management issues are greater than simply the issue of path erosion and it's recommended that a list is compiled of all users and those who have a stake in Croagh Patrick. While the local community is the most influential and the most likely to be affected by any developments, even here there are different groups and interests.

Before any work is considered there would need to be a campaign of publicity, consultation and awareness raising. It may be appropriate to set up a group or forum to meet to discuss the issues affecting Croagh Patrick – possibly initially in the form of a workshop or seminar looking at and identifying all the major issues, with opportunities for facilitated discussion groups and debates. It's very clear that if any path work is to happen it would require considerable support from many groups and communities – and there are many who are still to be convinced or persuaded that path works are necessary here.

The ownership and legality of doing path works would also need to be resolved – as would the legal liability and responsibility for the path in the long term. A management or executive group of the main stakeholders may be required to establish priorities, seek funding and identify a “vision” for the future management of the mountain.

5. Summary

- **As with all path works the basic principles apply –it's imperative that before any commitment to capital works or erosion control works are implemented, a full and sustained commitment to the future upkeep and maintenance of the work is required.** This is not said lightly and a path such as the Pilgrims Path could easily employ two people for six months of the year to carry out maintenance work on any constructed work.
- Path works are likely to be quite engineered and will be initially highly intrusive and difficult for many people to come to terms with. However the erosion created by walkers on this mountain is of such a scale and is so severe that only a large scale intervention could have any impact in it. A major consideration is the lack of a trained and skilled workforce to carry out the work in the locality. It's highly likely that the persons who are likely to be employed to carry out this work would need to undertake a formal and intense training programme, ideally in Britain, probably with footpath teams in the English Lake District or in Scotland.

- The path cannot be looked at or seen in isolation – there are so many other factors to be considered that a long term plan or vision for the future management of the mountain, its interpretation, parking, access, conservation, ownership and local facilities needs to be drawn up.
- **Challenge events** are a major current concern – these need to be quantified and put in the context of the overall use of the mountain. While it's a relatively new and visible use of the mountain, it's unlikely that it's a major factor in the erosion of the paths. The issues surrounding these events are possibly more cultural and the concerns based more on the commercial and income generating elements of these events. Currently it's clear that there is no guidance or management of these events and a forum dedicated to identifying a best practice or code for such events on the mountain could be very useful. One event alone has 3000 participants and currently uses both the main path and the lesser used path from the south. This path is currently starting to show significant but localised erosion – this will only increase and the path continue to deteriorate if large events with over 3000 participants use the path over a short period of time. This damage, as has already been mentioned elsewhere, is compounded by the use of the path for training prior to the event by the participants. It's recommended that all major events (involving over 200 participants) should only use the main path, in order to prevent increasing damage spreading to the other paths on the mountain.
- **Monitoring of the path and users** could be a very good project to start before any path works are started. All the evidence that suggests that erosion is worsening is anecdotal – while the evidence of erosion is highly visible, the rate at which the erosion is happening has not been identified, neither has the actual extent or scale of erosion been quantified.
- It's strongly recommended that a programme of series of fixed point transects and photo-monitoring is established at key points along the path. This would measure vegetation cover, width/depth of the path, soil loss and path surface material. This should ideally be GPS linked and should be able to be easily repeated in future years. This work could also demonstrate the effectiveness or otherwise of the success of any path works and identify the areas of greater priority. It could be argued that any available funding should concentrate not on those areas that are currently regarded as being the most visually eroded, but on those sections where the rate of erosion and the visual impact is greatest.
- **Visitor counts** using pressure pads or similar data logging devices accurately calibrated would also be of use. These could identify how many people use the mountain – the figures quoted during my visit and in subsequent reading vary enormously and are at best an educated guess. Modern data loggers enable an analysis to be made of how many people use the path, when they use the path, the attrition rate (i.e. how many don't make it to the summit), the time of day and time of year. These figures could also be of use in any subsequent funding bids.

- **Information and interpretation** - The provision of interpretation and information for users is at best confusing and dated and a plan is required to look at refreshing the existing signage and information boards, providing accurate mountain safety advice, and the availability of quality walking maps. Some of these could be done on a web-based approach so that users could do their research before arriving at the mountain, but supported by local information at the base of the mountain.
- **Funding and logistics of the work** – the overall capital funds required to implement these proposals is likely to be in excess of €1.5million – and this would need to be spread over several years and include all the elements of the project previously mentioned – not simply the path works but also the monitoring, identifying priorities, establishing a management group, establishing a stakeholder group, running forums and workshops, and creating an information portal for users.
- **The other major funding requirement is for the maintenance of any works – and this may be more of a problem than securing funding for a one off capital project.**
The need for a sustained and full commitment to the future maintenance of any path works cannot be understated and likewise any interpretation (including web-based, site-based or leaflets) need to be refreshed and updated on a regular basis to ensure the information is current and appropriate.