Lake District
National Park Authority

Education Service

Path Erosion and Management

"The use we make of hills is more than just recreation. It represents the chance of recharging batteries in lives that are becoming more pressurised and technologically based. Reducing the numbers of people going into the hills must never be seen as a solution. Our need for them is too great. The challenge, therefore, is to find ways of enabling people to venture into the hills without spoiling them."

Chris Bonnington

Path Erosion in the Lake District

Erosion can be defined as the loss or substantial alteration of vegetation and soil structure, due in part to the concentrated pressure of people. This is not just a modern day phenomenon. In 1819 a Lakeland traveller arriving at the Old Dungeon Ghyll Hotel in Langdale, via Stake Pass from Borrowdale, complained that the route he had just travelled was seriously damaged, worn and in a worse condition than when travelled 10 years previously.

Today the Lake District attracts over 12 million visitors per year. This large number of visitors puts the environment under great pressure. It has been estimated that over 10 million people use the National Park's paths annually. With so many feet pounding these routes, many Lake District paths have become huge open scars, visible from miles away. Eroded paths are not only unsightly, but unpleasant to walk on and can lead to habitat loss as well as damage to the heritage, archaeological and natural history qualities of the area.

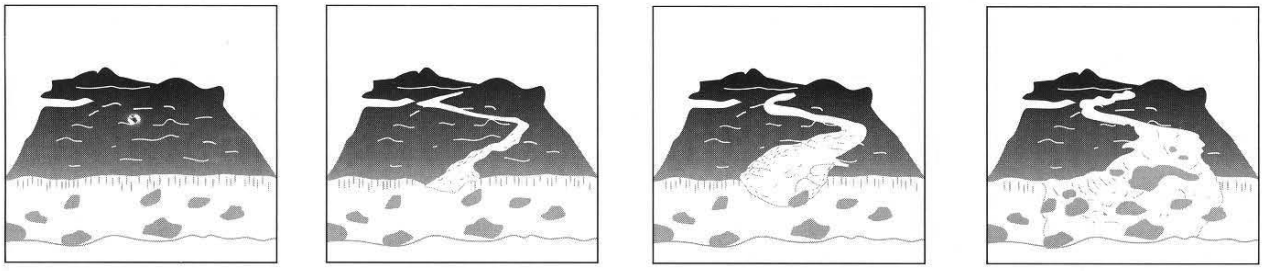
The photo appears to show a river gully. In fact this is the path that runs from Coledale Hause towards Wandope, near Buttermere. No work has ever (yet) been done to this path, and it demonstrates what other paths in the Lake District could look like if nothing was done to stabilise them.

A number of factors are involved in the susceptibility of a path to erosion. These can be split into physical and human:

Physical Factors
Altitude
Angle of slope
Aspect of slope
Climate
Compaction
Drainage
Season
Soil Depth
Soil Type
Underlying geology
Vegetation type

Human Factors
Level of use
Level of grazing
Popularity of route
Proximity of facilities
Type of activity undertaken

Stages in Footpath Erosion on a Fellside



Good vegetation cover, with roots binding soil particles together.

During trampling the soil compacts, reducing the infiltration rate of the rainfall and forming a shallow gulley. Water will tend to run overland rather than soak into the soil, so washing away soil particles. Continued trampling and soil loss causes some vegetation to die away. There are now fewer roots to hold soil particles together, so that even more soil is washed away or blown by wind.

With further trampling all vegetation on the path dies. As soil particles are removed, a gulley forms which acts as a channel for water running off the fell. This causes more soil to be washed away. Underlying rocks are now exposed.

The gulley becomes deeper as water erodes yet more soil. As it becomes less pleasant to walk in the gulley, people trample the grass at the sides and further widen the path.

The Question of Management
The Lake District National Park was established in 1951. The Lake District National Park Authority (LDNPA) is appointed to look after the area.

It has two purposes

- To conserve and enhance the natural beauty, wildlife and cultural heritage of the Lake District
- To promote opportunities for the understanding and enjoyment of the special qualities of the National Park.

Repairing eroded paths is not the statutory duty of the Highway Authority, or anyone else, as long as they are still 'open and fit for use'.

The National Trust, the LDNPA and English Nature have worked together since the late 1970s to manage the problem.

In 1993 they formed the Lake District Upland Access Management Group (AMG). Their aim was to complete a detailed survey of eroded paths in the Lake District. The initial surveys, which focused in particular on the popular central fells, identified 145 paths which were in need of repair.

By 1999, the whole of the National Park had been surveyed and 180 paths had been identifed as being in need of repair. The huge scale of the problem highlighted the need for a long term management solution. This led to the formation of the **Upland Path Landscape Restoration Project** (UPLRP) a 10 year project (2002 to 2011) which sets out to repair the majority of landscape scars caused by the erosion of fells paths in the Lake District.

Project Targets

To repair all 145 upland paths on the original list by 2011

To repair 70 of these paths in the first five years, between 2002 and 2006

To repair paths with surfaces which are in keeping with the locality

To recover and stabilise damaged vegetation adjacent to all paths repaired

To secure funding to repair the remaining 75 paths in the following five years 2007 to 2011

To carry out subtle path user containment works, for example roughened edges which look unattractive to walk on

To encourage native flora to regenerate in areas where work has been carried out

To monitor surface condition changes on all major upland paths in the Lake District

To maintain all repaired paths to prevent problems from reoccurring

Practicalities

The project aims to repair 14 paths each year. The National Trust will carry out about half of the work using their own path teams – on land owned or managed by themselves. National Park Authority rangers supervise contractors on all other land in conjunction with the landowners.

Stone Pitching

This technique involves digging stone into the ground to form good solid footfalls. This ancient technique is used extensively in the central fells using stone which is naturally occurring.

Benefits of Stone Pitching	Drawbacks of Stone Pitching
Hard wearing and low maintenance	Requires skilled craftsmen
Traditional technique which uses natural materials	Stone is in short supply
Blends well into the surroundings	Can be uncomfortable to walk on particularly in descent
Suitable on steep gradients	Expensive at more than £100 per metre

April 2003

Case study – Whiteless Pike, Buttermere

These two photos are taken at the same location. The original path had become so deep and loose that a second path had developed alongside. Soil was being lost into nearby watercourses. The section of path requiring management was just 20m long, but with quite a steep gradient. The best solution was to pitch a path. It is far better to catch a developing problem rather than leave it. If left, the material loss is far bigger, and repairs may not be as successful.

The work here was carried out by the National Trust.

September 2004

Sub-soiling or Soil Inversion

A mechanical digger is used to construct a turfed ditch. The sub-soil material removed from the drain is placed alongside the drain to produce a solid, hard wearing walking surface. A specialised grass seed mix is then sown to encourage a rapid re-generation of the vegetation to bind all the works together. Within a couple of growing seasons, the repaired route can look as though there has never been any damage.

Benefits of Sub-soiling	Drawbacks of Sub-soiling
Hard wearing and low maintenance	Requires highly experienced and skilled drivers
Uses only materials on site – no transport of materials	Access for machinery can be difficult
Blends very well into the surroundings	Can take several growing seasons to re-establish
Positive feedback from users - comfortable to walk on	Poses difficulties when used on paths with a gradient above about 15°
Cost effective at around £20 per metre	

Case Study – Birkside to Helvellyn

July 2002

October 2003

By the late 1990s, there appeared to be a wide, straight, white road built on the side of Helvellyn. This was actually an erosion scar. It was 8m wide and covered a distance of nearly 300m. A sub-soil path would provide the best solution on this sort of terrain, but there was no access route to the site.

A digger was dismantled, flown up onto the hill in sections and rebuilt on site. The path was then repaired by contractors using the soil inversion technique. The result was excellent. In just over a year, the erosion scar was almost invisible, the new path looked entirely 'natural' and is comfortable and pleasant to walk on.

Sheep play their part too …

Contractors have recently completed a path on the western shore of Crummock Water. In order to prevent further damage to the delicate hydrology of the wetland area, the path was built on a thick mat of sheep fleece.
The fleece prevents the stone from sinking into the mire. The damaged vegetation is already making a strong recovery, and it is hoped that the 'floating' path will prove to be a great success.

The Cost of Path Management and Repair

In 1999, it was estimated that it would cost £5 million to repair all 145 paths, a process that would take 10 years. The aims of the UPLRP could only be met if a regular income for the 10 year period was secured.

A bid was made to the Heritage Lottery Fund (HLF), and funding was secured for the first five years.
The HLF will provide a total of **£1.46 million** over the five year period.
This equates to **67%** of the funding.
The additional **33%** funding will come from :

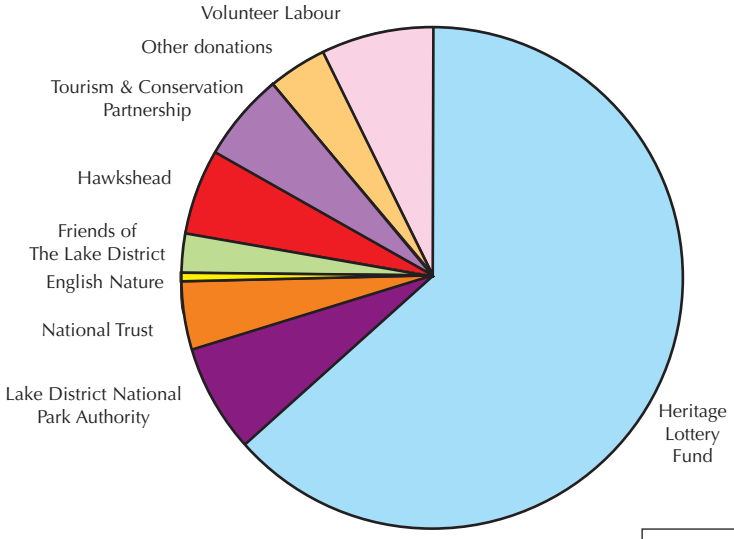
- Donations in kind, for example volunteer labour
- The Lake District National Park Authority
- The National Trust
- English Nature
- The Tourism and Conservation Partnership
- Friends of the Lake District (FLD)
- Other donations

The Lake District Tourism and Conservation Partnership work with the tourist industry to raise funds and implement conservation projects through visitor payback schemes. They have been involved with the project to date, and are keen to be further involved to help raise additional funds.

The Path Worker Training Scheme

In addition to the repair work, part of the HLF money was allocated for a training programme in heritage skills. The recruitment of highly skilled people for footwear repair work was so difficult that LDNPA teamed up with the British Trust for Conservation Volunteers (BTCV) to provide full time training courses for young agricultural workers. It was hoped that the training programme would help provide new job opportunities within the local community. Of the 14 local people that took part in the scheme, 11 are now in associated employment ranging from dry stone walling to footpath repair.

Contributions to Upland Landscape Restoration Project
to February 2004 (2.5 years from inception)



English Nature	3,000
Friends of the Lake District (FLD)	24,000
Hawkshead (Retail Outlet)	49,556
Heritage Lottery Fund	580,260
LDNPA	62,500
National Trust	42,000
Other Donations	31,332
Tourism & Conservation Partnership	55,318
Volunteer Labour	66,875
Total	**£914,841**

The National Trust will input an additional £83,000 per year. This will be in staff time.

You can help too

When out on the fells, please:

Place your feet thoughtfully; every single footstep causes wear and tear on the environment.
Keep to the path surface; do not walk along the vegetation at the edge of the path.
Remember that the slow-growing plants that can survive on mountains are particularly vulnerable to trampling.
Do not take shortcuts – other users and water will soon follow your tracks and an erosion scar will develop.
Do not build or add to cairns – removing stones from paths can make problems worse.
Remember, there may be only one of you, but 10 million pairs of feet tread the Lake District paths each year!

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Have a look at the
Fix The Fells website
www.fixthefells.co.uk

Alternative formats
available from 01539 724555